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Des Plaines Station Feasibility Study

Final Report

City of Des Plaines

September 9, 2019

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City of Des Plaines

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1. Executive Summary

The City of Des Plaines is conducting a comprehensive feasibility study for a new station on the Metra North Central Service Line (NCS). The NCS line uses the Canadian National Railway (CN) between Antioch and Franklin Park and operates its last 12.7 miles to Chicago Union Station (CUS) over the Metra Milwaukee District West (MD-W). The study sought to answer the following questions:

- Can a location be identified to physically accommodate a station and parking?
- Will the station be compatible with current railroad operations?
- Will there be a sufficient number of potential users?
- Will impacts to traffic, storm water, and other factors be manageable?
- Can the station be realistically funded? and
- Will a station stimulate economic development within the surrounding district, including future development?

This final report is a compilation of the series of technical reports that addressed each of these questions. A separate condensed version of this report was also prepared, which may be of interest to readers.

1.1 Technical Summary

The following summarizes each of these areas of investigation:

Background and Station Purpose

The Metra North Central Service (NCS) line traverses the full north-south length of the City of Des Plaines, a distance of six miles, but does not include a station. The City is served by Metra with two stations on the Union Pacific Northwest (UP-NW) line, Cumberland and Des Plaines Stations, which serve the northern part of the City. The southern portion of Des Plaines is less well-served by transit. A new station could spur the development process to transition land use for vacant or under-utilized properties near the NCS.

Station Spacing

The proposed NCS Des Plaines station would be between the Prospect Heights and O'Hare Transfer Stations, which are 6.9 miles apart. This gap is significantly greater than the average space between existing Metra stations of two miles. Published guidelines for commuter rail service suggest spacing of three or more miles, although larger legacy commuter rail systems nationally average less. While station spacing can be a factor to the success of a potential commuter rail station, spacing alone is not a predictor ridership performance. Service levels, station amenities, destinations within walking distance, and the size of the potential ridership market are likely to be deciding factors in the feasibility of an infill station on this segment of the NCS.

Station Site Selection

Eight prospective station sites were identified and evaluated. The location at Oakton Street was recommended due to meeting a high number of suitability criteria and associated future transit-oriented development opportunities.

Existing Conditions

The proposed NCS Oakton station market shed already includes Metra commuters, most of whom use the UP-NW downtown Des Plaines Station. Analysis of Census data reveals that 45 percent of Oakton station market shed residents working in downtown Chicago (i.e., Metra's principal travel market) travel by private automobile, suggesting a latent demand for improved commuter rail service access. Several Pace bus routes operate near the Oakton station site; these routes could be used as first/last-mile transit connections. Pace's proposed Pulse Dempster Line will have a stop within walking distance of the proposed Oakton station, which could complement improved commuter rail service to the area. A significant amount of planning and analysis relevant to the potential station site has been completed in recent years, and these plans will serve as important input when considering the station proposal. A station at Oakton Street would also provide access to O'Hare Airport terminals, as it will allow passengers to travel via Metra to the NCS O'Hare Transfer Station and there connect to the Airport Transit System (ATS).

Market Assessment

Analysis of development data within a half-mile of Metra stations indicates growth in multi-family housing, which would be consistent with transit-oriented development (TOD) principles. Nine site-specific development opportunities in the half-mile Oakton station area were identified, including three near-term project sites. A decision to advance development of a Metra station at Oakton Street would encourage developer interest.

Public Outreach

Extensive public and stakeholder outreach activities were used to ensure study awareness and to obtain input. The study included a project website, social media, an online survey, stakeholder meetings, and a public open house.

Des Plaines NCS Station Demand

It was assumed that all NCS trains operating through the area would serve the proposed Oakton station. Two methods were used to forecast ridership at the Oakton station, together resulting in an estimated 498 boardings per weekday in 2050. Diversions from other nearby Metra stations resulted in an estimated net increase in passenger boardings of 312 per weekday. Based on the ridership model output, park-and-ride is expected to be the most common means of accessing the Oakton station. No operational impacts to commuter rail or freight service are anticipated.

Station Concept Plans

Physical constraints impacting a station at Oakton Street were identified, and served as input in development of a concept plan for the station, platforms, parking, and access improvements.

Traffic and Stormwater Impacts

Level of service (LOS) for affected roadways is not expected change as a result of automobiles accessing and egressing the parking facilities at the proposed station. The station was estimated to add to less than one percent of gate downtime per day to the Oakton Street CN railroad crossing. The proposed infrastructure improvements would require the development of stormwater detention facilities.

Costs and Revenues

The proposed layout of the station and parking facilities was used as the basis to estimate capital costs of $11.5 million. Annual Metra fare revenue and other revenues were also estimated.

Funding Opportunities

Potential funding and financing programs were identified.

1.2 Conclusions

The technical analysis in this report indicates that a Des Plaines NCS station at Oakton Street would be feasible. The proposed station was estimated to attract a level of ridership placing it in the top 50 percent of all Metra stations, which would meet one Metra's pending requirements for their approval and sustained operation. Public outreach found strong local support. A Des Plaines station would serve as a catalyst for development, which could follow transit-oriented development principles of mixed use, compactness, and walkability. A range of funding programs could be used to finance the improvements required to implement the station. The ultimate decision rests with the Des Plaines City Council. The City's commitment to secure capital funding for construction and an agreement to fund station and parking operation and maintenance costs would be required by Metra.

2. Station Spacing and Site Selection

2.1 Introduction

A question that needed to be answered early in the study was whether a station on this segment of the NCS is appropriate, based on practical or theoretical station spacing considerations. The proposal is to study an infill station between Prospect Heights at milepost (MP) 24.0 and O'Hare Transfer at MP 17.1. The midpoint of this 6.9-mile span would be MP 20.6, just south of the Deval Junction of the NCS and Union Pacific Northwest (UP-NW) lines west of downtown Des Plaines. Placing a station at this location would reduce the spacing from 6.9 miles to 3.5 miles. Locating the proposed station north or south of this mid-point would result in a minimum spacing less than this amount. The identification and screening of alternative sites determined how spacing would be impacted within this broader range. This chapter reviews whether the resultant spacing raises issues that could affect the overall viability of the new station, or how it is designed.

The chapter covers the following areas:

- Theoretical basis for, and issues with, the spacing of transit stops
- Implications of station spacing for commuter rail
- Guidelines, standards, and practices of other commuter rail agencies
- Review of Metra station spacing
- Screening of alternative station locations, including the resultant spacing of each location
- Conclusions applied to Des Plaines

2.2 Station Spacing Issues

A fundamental design challenge for any public transit system is deciding the distance between access points of the service. This applies to a local bus, light rail, rapid transit, commuter rail, or intercity rail. The choices involve the following trade-offs:

- Minimal number of stops (i.e., wider spacing) to offer faster service, or
- More stops (i.e., closer spacing) to provide access to a greater number of potential uses, but at slower speeds.

To illustrate the effect of station stops on travel time, Table 2-1 shows scheduled travel times between Naperville and Union Station on the BNSF line serving the western suburbs. This line was chosen to illustrate the effect of spacing/stop patterns because it offers express and local/all-stop service. The two stations are 28.5 miles apart. As can be seen, the difference in travel time between an express train with no intermediate stops and an all-stop train (i.e., 22 intermediate stops) is 115 percent (33 minutes versus 71 minutes). Each added stop increases travel time by about two minutes; variations beyond number of stops are mostly due to differences in the level of ridership, where longer station dwell times are required with higher boardings / alightings.

Table 2-1: Selected BNSF Inbound Train Travel Times between Naperville and CUS

Union Station Arrival	Intermediate Stops	Scheduled Travel Time (mins)	Added Time from No Stops (mins)	Added Time per Stop (mins)	Speed (MPH)
6:53 AM	0	33	0	--	51.8
5:32 AM	9	48	15	1.7	35.6
4:58 PM	11	55	22	2.0	31.1
7:00 AM	19	66	33	1.7	25.9
6:00 AM	22	71	38	1.7	24.1

SOURCE: Metra BNSF Timetable.

The need to provide closer spacing—at the expense of travel time—is driven by serving riders who access or egress by a mode other than private automobile, typically walking. Walking as an access mode is generally less common for commuter rail because it tends to serve lower-density suburban and exurban communities where commuters typically have access to an automobile and must travel longer distances to reach the central business district. Automobile access is a key attribute of commuter rail, and it greatly enlarges the station market area from which riders can be drawn to a station, in addition to obviating the need for frequent stops, which would significantly slow travel times across longer distances. Commuter rail station market areas are also comparatively less dense than would otherwise be needed to support transit, since the station parking facilities serve to collect riders from a large area.

Table 2-2 shows the distribution of originating riders by their mode of access to reach a boarding station. Access mode shares are from the Metra 2016 Origin-Destination Survey of riders traveling on AM trains, and are presented in rank order. For the Metra system as a whole, 53.1 percent of riders used an automobile to park at a station. Another 18.6 percent were dropped off or carpooled, totaling 71.7 percent who arrived by car. Riders using the walk mode of access, who would be most impacted by station spacing, accounted for 22.6 percent of surveyed riders. Table 2-2 also presents mode of access shares for the NCS Line, which reveals a lower use of the walk mode, and a higher share arriving by car than for the system overall (79.2% vs. 71.7%). Metra stations in or near Des Plaines (i.e., Des Plaines, Cumberland, Prospect Heights, O'Hare Transfer) have walk access modes ranging from 11 percent at Prospect Heights to 47 percent at Des Plaines.

Table 2-2 also reveals that riders who access stations by walking travel the shortest distance between their origin and AM boarding station (0.4 miles straight-line distance, on average, at NCS stations—slightly longer than the 0.3 miles systemwide). NCS riders accessing by automobile tend to travel between 1.2 and 1.8 miles.

Table 2-2: Metra and NCS Mode of AM Access and Average Distance

Access Mode	Share of AM Trips		Avg. Dist.(miles)	
	System	NCS	System	NCS
Drive Alone	53.1%	57.7%	2.2	1.7
Walk	22.6%	13.2%	0.3	0.4
Drop Off	14.7%	17.6%	1.4	1.2
Bicycle	2.5%	4.4%	0.9	0.9
Carpool Passenger	2.0%	2.1%	1.9	1.8
Carpool Driver	1.9%	1.8%	1.9	1.7
Pace Bus	1.6%	0.4%	2.4	1.5*
CTA Bus	0.8%	1.1%	1.8	1.9
Other	0.5%	0.4%	1.6	2.3*
Rideshare (Uber, Lyft, Via)	0.3%	0.5%	2.0	1.0*
CTA Rapid Transit	0.2%	1.1%	3.5	2.8*
Taxi	0.2%	0.3%	1.7	1.3*
Another Metra Line	0.1%	0.1%	6.8	0.7*
Divvy bike	0.1%	0.3%	1.0	1.0*
Private Bus	0.0%	0.1%	1.9	--
Total / Average	100.0%	100.0%	1.6	1.4
Total AM Boardings	125,921	3,410		

SOURCE: Metra 2016 Origin-Destination Survey.

** Weighted average based on fewer than 10 data points.*

Notes: Excludes downtown station boardings. NCS average includes shared stations Western Avenue and River Grove. Excludes farthest 10% of systemwide origins by mode to correct for outliers in survey results. Weighted boardings and straight-line distance were used to calculate average distance in miles. Values are rounded to the nearest decimal and thus may not sum to 100%.

While the majority of Metra riders board AM Peak Inbound trains at outlying stations and alight at a downtown Chicago station, there are stations in the system that also serve destination riders. A prominent example is the Milwaukee District North (MD-N) Lake Cook Road Station in Deerfield, which is supported by a system of distributor buses called Shuttle Bugs. Unlike the traditional commuter rail rider, who is destined for the highly concentrated area of jobs in downtown Chicago (about 700,000 jobs in a three-square mile area), riders traveling to endpoints outside of downtown are bound for destinations generally more dispersed—often beyond walking distance of an alighting station.

The Metra Origin-Destination survey also included data on egress mode, which represented travel means used to reach one's ultimate destination during the AM (start of service until noon). The percentages shown on Table 2-3 exclude responses for riders alighting one of Metra's five downtown stations. As can be seen, over one-half of system respondents walked after alighting their train. The NCS showed a lower share of walkers (45.9 percent), but this lower walk share is primarily driven by a large number of riders accessing the Western Avenue station (shared with MD-N and MD-W lines) by CTA bus. Table 2-3 also shows the average distance commuters travel from a non-downtown station to their destination. The system average for distance walked between the alighting station and trip destination is somewhat farther (0.5 miles) than the distance between the boarding station and trip origin (0.3 miles), but it is even farther for the NCS line (0.8 miles), potentially indicating fewer destinations within easy pedestrian access of the station. NCS O'Hare Transfer and Prospect Heights

have notably low walk egress shares (about 20 percent), while UP-NW Des Plaines and Cumberland are rather higher at about 35 percent walk egress.

Table 2-3: Metra and NCS Mode of AM Egress and Average Distance

	Share of AM Trips		Avg. Dist. (miles)	
Egress Mode	System	NCS	System	NCS
Walk	52.3%	45.9%	0.5	0.8
Private Shuttle	8.8%	10.0%	1.9	1.1
Pace Bus	7.9%	2.8%	2.3	3.5*
Get Picked Up	6.4%	6.5%	2.0	1.3
Drive Alone	6.0%	2.1%	2.6	2.3*
CTA Bus	5.7%	16.4%	2.0	1.5
Bicycle	2.7%	3.0%	1.2	1.9*
Rideshare (Lyft, Uber, Via)	2.2%	2.1%	2.0	1.7*
CTA Rapid Transit	1.8%	1.1%	4.5	1.5*
Taxi	1.7%	1.9%	2.2	1.2*
Carpool Passenger	1.6%	1.5%	2.4	2.9*
Other	1.5%	2.9%	1.7	0.5*
Another Metra Train	0.7%	1.1%	7.7	6.5*
Divvy Bike	0.4%	2.3%	1.2	1.6*
Carpool Driver	0.4%	0.6%	3.8	5.5*
Total / Average	100.0%	100.0%	1.3	1.4
Total AM Alightings	16,258	980		

SOURCE: Metra 2016 Origin-Destination Survey.

** Weighted average based on fewer than 10 data points.*

Notes: Excludes downtown station alightings. NCS Average includes shared stations Western Avenue and River Grove. Excludes farthest 10% of systemwide destinations by mode to correct for outliers in survey results. Weighted alightings and straight-line distance were used to calculate average distance. Values are rounded to the nearest decimal and thus may not sum to 100%.

Table 2-4 shows the distribution of AM walk access and egress by one quarter-mile increment for stations outside of downtown Chicago. Systemwide, the first half mile accounts for 75% of walk access trips and 66% percent of walk egress trips, but NCS riders who walk to their destination generally travel much farther, and thus less than 63 percent walk a half mile or less to board and 47% walk a half mile or less after alighting at an NCS station to reach their destination.

Table 2-4: Walk Distances for AM Riders, System and NCS

	Walk Access		Walk Egress	
Miles	System	NCS	System	NCS
0.00 - 0.25	38%	37%	32%	29%
0.26 - 0.50	37%	26%	34%	18%
0.51 - 0.75	16%	11%	22%	8%
0.76 - 1.00	5%	6%	5%	6%
1.01 - 1.25	1%	2%	2%	2%
1.26 - 1.50	1%	2%	2%	10%
1.51 +	3%	16%	3%	27%
	100%	100%	100%	100%

SOURCE: Metra 2016 Origin-Destination Survey.

Notes: Excludes downtown station boardings and alightings. NCS values include shared stations Western Avenue and River Grove. Uses weighted boardings/alightings and straight-line distance in calculating average distance. Values are rounded.

Generally speaking, while the higher percentage of AM riders who walk from a non-downtown station suggests that closer spacing can be important, this segment of Metra ridership represents one-eighth of riders making Metra's traditional AM commuter trip. In addition, there were only 13 stations of 234 total non-downtown stations that reported more AM Peak alightings than boardings based on the 2016 Metra passenger count. As such, Metra's accommodation of destinations outside of downtown Chicago is limited to a relatively few areas in the region.

2.3 Commuter Rail Station Spacing Practice & Guidelines

Table 2-5 lists all commuter railroads in the United States who report statistics to the Federal Transit Administration's (FTA) National Transit Database (NTD), shown in rank order of unlinked passenger trips (i.e., count of each time a passenger boards a vehicle, even if part of the same journey from origin to destination). This data repository is required of FTA grant recipients, and includes a variety of financial, operating, ridership, and asset data. For the 23 systems listed, 2016 data on route miles and number of stations was used to derive the average system spacing of stations. Overall, this statistic was 3.1 miles. This agency average was higher than the 2.0 miles for Metra, as well as higher than most of the older and largest commuter rail systems nationally. The top seven agencies have spacing averages lower than the 3.1 overall average; these agencies accounted for 89 percent of the reported unlinked trips in 2016.

Table 2-5: Station Spacing at US Commuter Railroads

Commuter Rail Agency	Primary city Served	Annual Unlinked Trips	Route Miles	Number of Stations	Average Spacing (miles)
MTA Long Island Rail Road	New York	103,196,857	319.1	124	2.6
New Jersey Transit Corporation	New York	90,872,267	500.9	165	3.0
Metro-North Commuter Railroad Company	New York	86,297,511	272.9	112	2.4
NE IL Regional Commuter Railroad Corp (Metra)	Chicago	72,289,606	487.7	241	2.0
Southeastern Pennsylvania Transp. Authority	Philadelphia	36,187,570	223.5	155	1.4
Massachusetts Bay Transportation Authority	Boston	33,830,904	388.0	138	2.8
Peninsula Corridor Joint Powers Board	San Francisco	18,355,641	76.8	32	2.4
Southern California Regional Rail Authority	Los Angeles	13,758,419	412.2	59	7.0
Maryland Transit Administration	Baltimore	8,961,892	200.2	42	4.8
Utah Transit Authority	Salt Lake City	4,545,849	87.2	16	5.5
Virginia Railway Express	Washington	4,352,814	86.8	19	4.6
Central Puget Sound Regional Transit Authority	Seattle	4,312,113	81.9	12	6.8
South Florida Regional Transportation Authority	Miami	4,241,486	71.1	18	4.0
Northern Indiana Commuter Transportation Dist.	Chicago	3,504,080	89.9	19	4.7
Dallas Area Rapid Transit	Dallas	2,054,001	36.2	10	3.6
North County Transit District	San Diego	1,556,056	41.1	8	5.1
Pennsylvania Department of Transportation	Philadelphia	1,416,029	72.2	12	6.0
Altamont Commuter Express	San Jose	1,290,085	86.0	10	8.6
Rio Metro Regional Transit District	Albuquerque	886,386	96.6	14	6.9
Connecticut Department of Transportation	Hartford	849,942	50.6	9	5.6
Metro Transit	Minneapolis	711,167	39.0	7	5.6
Northern New England Passenger Rail Authority	Boston	473,923	143.8	12	12.0
Regional Transportation Authority	Nashville	277,741	31.4	6	5.2
Commuter Rail Total / *Average*		**494,222,339**	**3,895.0**	**1,240**	***3.1***

SOURCE: 2016 Federal Transit Administration (FTA) National Transit Database
Values are rounded, which may affect totals.

A review of commuter rail agency policies at the five largest commuter rail agencies in terms of ridership found that none have specific guidelines or standards on the spacing of stations. Guidance on spacing can be found in Alternative Analysis studies that include evaluation of candidate transit technologies. In addition, selected state departments of transportation have published characteristics of transit technologies as an aid to statewide transportation planning. Agencies have also included guidelines to assist in transit-oriented development planning.

Table 2-6 indicates that published guidelines for station spacing are generally much wider than commuter rail agencies experience in practice, especially compared to older and larger legacy systems. This is believed to be due to guidelines being used principally for new start-up systems, where the main travel market to be served is the suburb-to-center city work commute trip. The guidelines are mostly presented as ranges from two miles to up to ten miles.

Table 2-6: Selected Guidelines on Commuter Rail Spacing

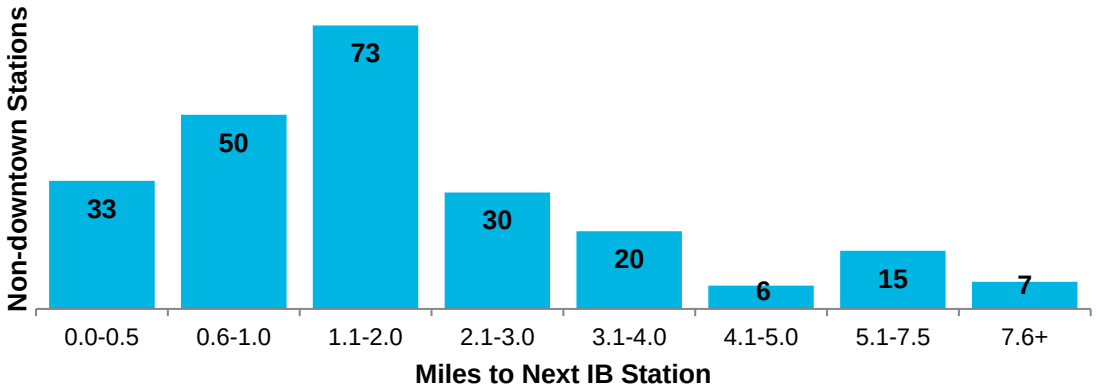
Report	Sponsoring Agency	Published	Spacing in Miles
Wisconsin Urban Rail Transit Technology Alternatives	State of Wisconsin Reference Bureau	1998	3 to 6
New Hartford Springfield Commuter Rail Implementation Plan	Connecticut DOT	2004	5
Circle Line Alternatives Analysis	Chicago Transit Authority	2006	3 to 7
Transit Service Design Guidelines	Virginia Department of Rail & Public Transportation	2008	5 to 10
Planning for Transit-Supportive Development	FTA Research	2014	2 to 5
Understanding the Range of Transit Choices	Florida Department of Transportation	2015	2 to 8
Regional Transit Guidelines	Metropolitan Council (Twin Cities Region)	2016	5 to 7

2.4 Metra Practice

The Metra system includes 241 stations, including five downtown stations. For the purpose of this analysis, two stations that serve more than one line were treated as single stations (i.e., Joliet-Rock Island/Heritage Corridor and Clybourn-UP-N&NW). As a result, the following is based on 234 stations. This count does not include the Romeoville Station on the Heritage Corridor Line, which opened in February 2018.

Figure 2-1 shows the distribution of stations by range of miles to the next inbound station. Eighty-three stations (35 percent of all stations) have a spacing of one mile or less. Seventy-three stations (31 percent) are one to two miles from the next inbound station. The remaining one-third of stations range between 2.1 and 21.2 miles apart.

Figure 2-1: Metra Non-Downtown Stations by Miles to the Next Inbound Station

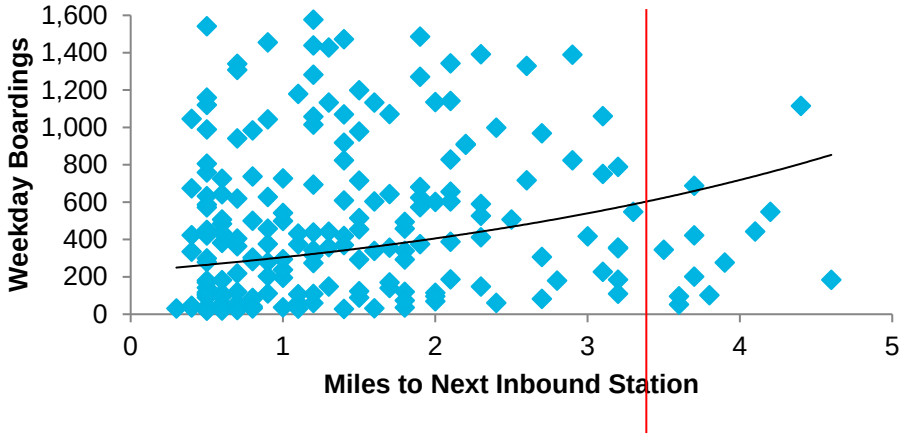


An important question related to the spacing of Metra stations is whether wider spacing translates to higher ridership. That is, when stations are spaced more closely together, does demand spread between stations such that ridership at an individual station is lower? Related, is faster service from wider spacing more important than maximizing access with closer spacing?

Figure 2-2 is a scatter plot of boardings by distance to inbound (IB) station (the y-axis is truncated to improve legibility). This scatterplot illustrates that as spacing increases, so do boardings, but the correlation is very weak. In order to find a stronger correlation between spacing and ridership, over 25 scatterplot analyses were carried out using different subcategories such as travel time to downtown, location, station type, service levels, parking capacity, etc. None of these yielded a strong correlation, which indicates that spacing on its own does not cause high or low ridership—multiple other factors influence station performance and may vary by station spacing.

The vertical red line represents the 3.5-mile mark—the midpoint between the O'Hare Transfer Station and Prospect Heights Station—as a representation of the proposed Des Plaines station site. At this spacing (plus or minus a half-mile), boardings range from about 50 to over 5,000. The median weekday boardings for stations between 3.0 and 4.0 miles from the next inbound station is 355, and it includes such high performing stations (over 1,000 boardings in 2016) as Route 59, Ravenswood, and Tinley Park, as well as lower performers (less than 100 boardings) like Kedzie and Grand/Cicero. Four existing NCS stations are between three and four miles to the next inbound station: Wheeling, Washington Street, Prairie Crossing/Libertyville, and Mundelein.

Figure 2-2: Station Boardings by Distance to Next Inbound Station



Another way of considering the issue of appropriate spacing for a new infill station is examining Metra's experience in adding stations. Since 1983, 32 stations have been added to the system. Of this number, one was a consolidation of two stations, seven were part of line extensions, eleven were stations on a new line (i.e., NCS), and the remaining thirteen were infill stations.

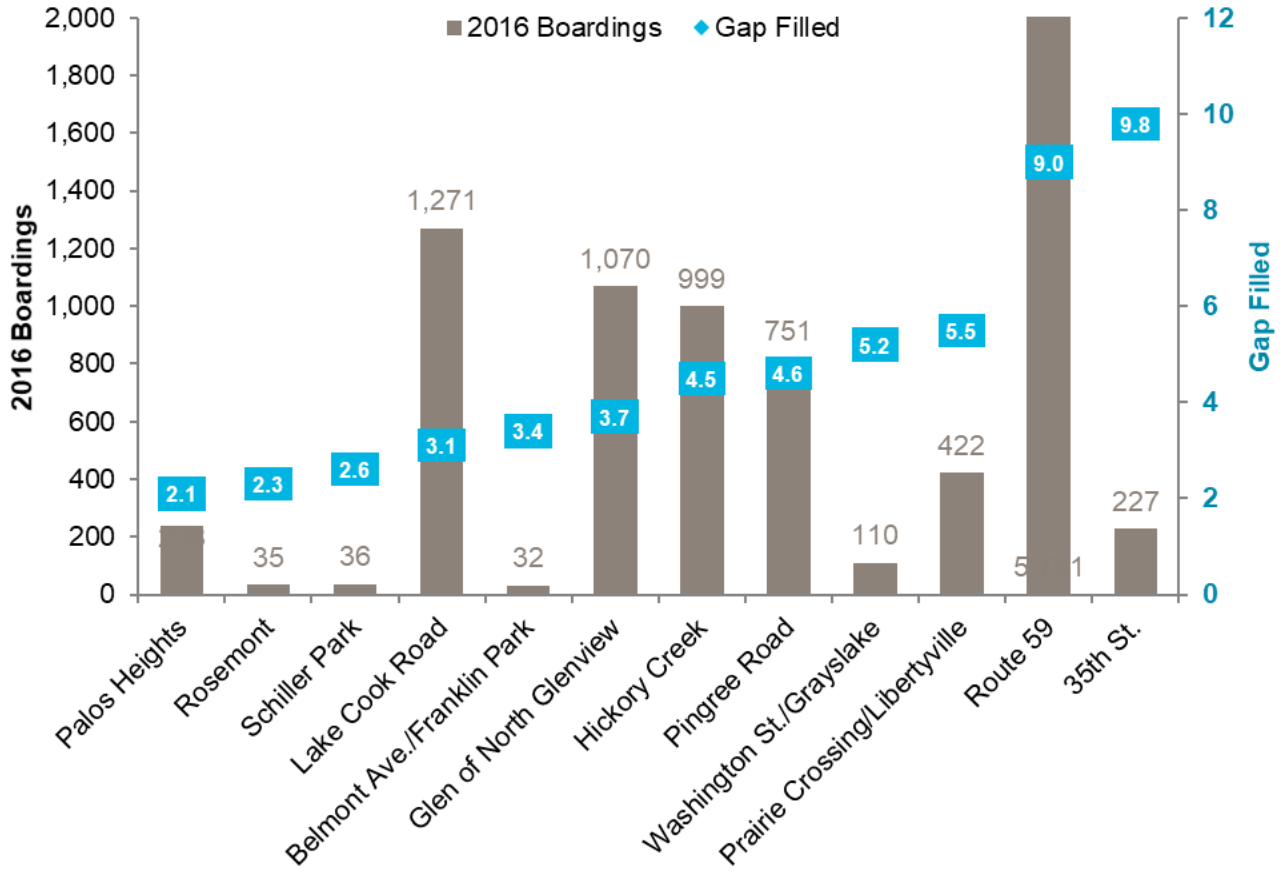
Table 2-7 lists new infill stations ordered by the gap between existing stations that was filled. A Des Plaines NCS station would fill the gap between Prospect Heights and O'Hare Transfer, a distance of 6.9 miles. This distance would be more than all but three Metra infill stations added since 1983, and would be comparable to the most recently added infill stations (i.e., 35th Street in 2011 and Romeoville in 2018). Table 2-7 also includes weekday boardings, which indicates a wide range of performance. Three of the most lightly used stations on the Metra system are included (Belmont Avenue, Rosemont and Schiller Park) as well at the single busiest station outside of downtown Chicago (i.e., Route 59 with 5,781 boardings in 2016). This corroborates systemwide analysis, suggesting that there is not a clear correlation between station spacing and ridership for adding infill stations.

Table 2-7: Infill Metra Stations Added since 1983

Station	Line	Mile Post	Opening Year	Distance to Next IB Station	Distance to Next OB Station	Gap Filled	2016 Boardings
Palos Heights	SWS	19.2	2004	1.0	1.1	2.1	238
Rosemont	NCS	15.6	2006	0.8	1.5	2.3	35
Schiller Park	NCS	14.8	2006	1.8	0.8	2.6	36
Lake Cook Road	MD-N	23.0	1996	1.9	1.2	3.1	1,271
Belmont Ave./Franklin Park	NCS	13.0	2006	1.6	1.8	3.4	32
Glen of North Glenview	MD-N	18.8	2001	1.4	2.3	3.7	1,070
Hickory Creek	RID	27.5	1993	2.4	2.1	4.5	999
Pingree Road	UP-NW	41.7	2005	3.1	1.5	4.6	751
Washington St./Grayslake	NCS	43.9	2006	3.2	2.0	5.2	110
Prairie Crossing/Libertyville	MD-N	39.2	2004	3.7	1.8	5.5	422
Romeoville	HC	29.2	2018	3.9	3.7	7.6	n/a
Route 59	BNSF	31.6	1989	3.1	5.9	9.0	5,781
35th St.	RID	3.1	2011	3.1	6.7	9.8	227

These results are also provided graphically in Figure 2-3, which charts 2016 boardings along with the gap filled by the infill station, in ascending order of gap. The NCS 6.9-mile gap to be filled is wider than the gaps filled by four other infill stations with boardings above the Metra system station average of 637 weekday boardings (i.e., MD-N Lake Cook Road, MD-N Glen of North Glenview, RID Hickory Creek, UP-NW Pingree Road). These four stations range from milepost 18.8 to 41.7 (i.e., track distance to the downtown terminal station)

Figure 2-3: Infill Stations by Boardings and Gap Filled



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SOURCE: Metra 2016 Boardings. Note: Vertical axis is truncated for the BNSF Route 59 Station to improve chart legibility.

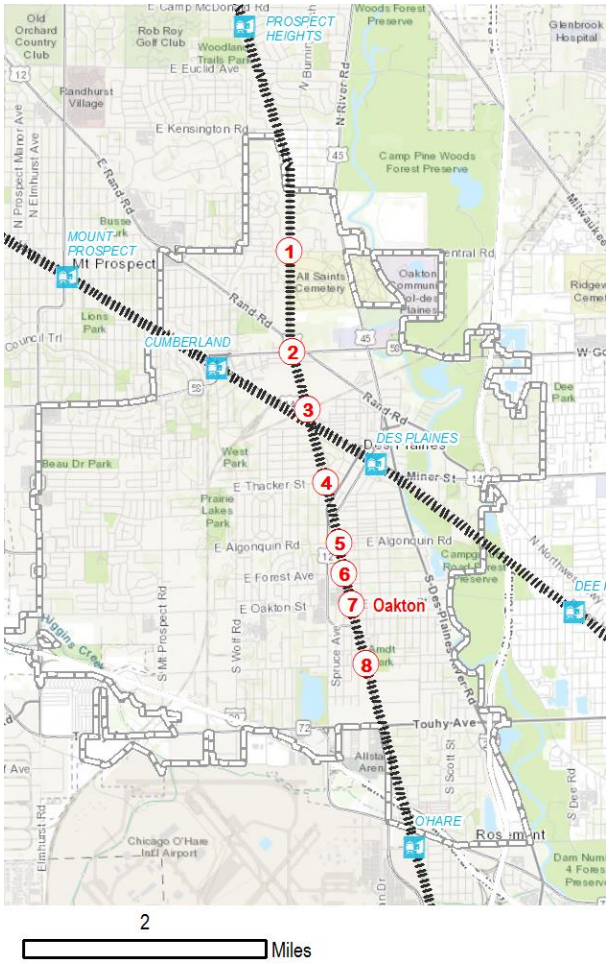
2.5 Initial Station Screening

As noted above, the gap between existing NCS stations for this study is comparatively wide, and multiple sites can be considered for a proposed station. To narrow the field of prospective sites, an initial screen of alternative station locations was performed. As shown on Table 2-8 and Figure 2-4 eight potential locations were identified, with each providing varying degrees of roadway accessibility.

Table 2-8: Potential Station Sites and Mileposts

	Location	Distance to Union Station
	Prospect Heights Station	***24.0***
1	Central Road	22.1
2	Rand Road / Golf Road / Seegers Road	21.3
3	Northwest Highway (US 14)	20.8
4	Thacker Street	20.2
5	Algonquin Road	19.7
6	Forest Avenue	19.4
7	Oakton Street	19.2
8	Howard Avenue	18.6
	O'Hare Transfer Station	***17.1***

Figure 2-4: Potential Station Locations



The screening involved determining impacts using a limited number of criteria, which were generally qualitative, and the completion of a matrix–based evaluation. This fatal flaw screening determined which of the alternative sites should advance for more detailed analysis. The following describes each of the station sites evaluated.

1. Central Road is an east-west 2-lane collector roadway in the northern tip of the City. ComEd right-of-way containing high tension wires is on the west side of the tracks. West of the utility right-of-way is primarily single-family residential. The eastern portion of the site is made up of institutional uses.

2. Rand Road / Golf Road / Seegers Road, Golf is a four-lane arterial roadway with an east-west orientation. Immediately north of the Golf/CN rail crossing is Rand Road (US12), a four-lane arterial with a southeast-northwest orientation. In addition, Seeger Road parallels and is about 400 feet to the south Golf Road. Seegers is a local through-street connecting Rand Road on the east to Northwest Highway on the west. Land uses surrounding the site include ComEd right-of-way on the east side, a ComEd substation south of Seegers Road, institutional/open space uses to the east and residential to the west.

3. Northwest Highway (US14) is a four-lane roadway generally paralleling the north side of the UP-NW rail line. Northwest Highway passes under the diamond crossing of the CN and the UP Milwaukee Subdivision railway tracks. The UP-NW line is 500 feet to the west, creating a complex area of rail

lines and roadways with severe access constraints. The larger site includes industrial and logistics uses to the north and residential to the south. Downtown Des Plaines is 0.7 miles to the southeast.

4. Thacker Street is a two-lane east-west collector connecting areas of south downtown Des Plaines to areas west of downtown and west of the city. It is known as Dempster-Thacker starting in downtown and heading west. In Mount Prospect and to the west, the roadway is known only as Dempster Street. The station site contains a mix of residential, industrial and commercial uses, and is one-half mile from downtown Des Plaines.

5. Algonquin Road is a two-lane east-west collector with commercial uses west of the CN and single-family residential east.

6. Forest Avenue is a local residential street that dead ends from both sides of the CN. East of the tracks is single-family residential, and west is commercial.

7. Oakton Street is a four-lane east-west collector between Evanston and Elk Grove Village. Areas west of the crossing are mostly commercial and east primarily single-family residential, although commercial uses front Oakton for much of its length in Des Plaines.

8. Howard Avenue is an east-west collector west of Mannheim Road (US 45), which is parallel and 25 feet from the CN line. East of the CN, Howard is a local street, but there is a gap at Arndt Park. Howard also does not cross the CN tracks. The station area is mixed-use, with open space, commercial, industrial, and residential.

To assess the locational and physical differences of the sites, Table 2-9 provides distances relative to existing NCS and UP-NW line stations. In addition, the number of tracks (i.e., one or two) and the elevation of the roadway at each of the sites are indicated.

Two of the sites (Central Road and Howard Avenue) would result in spacing of less than two miles. While not a hard cut-off, based on the prior review of appropriate commuter rail spacing, this would seem a reasonable initial criterion. Previous NCS improvements by Metra extended double-track portions of the CN route. A section that remains single-track is the two miles between south of Thacker Street and Central Road. Since locating a station on a single-track section of the route would create an operational constraint, The Rand-Golf-Seegers Roads, Northwest Highway, and Thacker Street sites would be not be preferred.

Table 2-9: Potential Station Sites - Key Rail Network Features

		Distance in Miles to:			Airline Miles from UP-NW Stations:				
		Union Station	Prospect Heights	O'Hare Transfer	Des Plaines	Cumber-land	Dee Road	No. of Tracks	Rail/Road Elevation
	Prospect Heights Station	24.0	0.0	6.9				2	at-grade
1	Central Road	22.1	**1.9**	5.0	1.9	1.1	3.7	2	at-grade
2	Rand-Golf-Seegers Rds.	21.3	2.7	4.2	1.1	**0.6**	3.1	**1**	at-grade
3	Northwest Highway	20.8	3.2	3.7	**0.7**	**0.8**	2.7	**1**	separated
	Midpoint	*20.6*	*3.4*	*3.5*				*1*	at-grade
4	Thacker Street	20.2	3.8	3.1	**0.5**	1.3	2.2	**1**	at-grade
5	Algonquin Road	19.7	4.3	2.6	**0.8**	1.8	1.9	2	at-grade
6	Forest Avenue	19.4	4.6	2.3	1.0	2.0	1.8	2	at-grade
7	Oakton Street	19.2	4.8	2.1	1.2	2.2	1.8	2	at-grade
8	Howard Avenue	18.6	5.4	**1.5**	1.7	2.8	1.7	2	at-grade
	O'Hare Transfer Station	17.1	6.9	0.0				2	at-grade
		Less than 2.0			*Less than 1.0*				

An important consideration in selecting a site is the opportunity to use development to maximize the number of potential users who would be within walking distance of the station. Transit-oriented development (TOD) principles include adding higher density, mixed-use development and improvements to encourage a walkable environment. Table 2-10 provides relevant information for each of the sites, including the following metrics:

- **WalkScore |** WalkScore is a commonly accepted metric for the pedestrian friendliness of a given location. WalkScore points are awarded based on the walking distance to common amenities, such as shops, restaurants, and other businesses and facilities. WalkScore also evaluates pedestrian friendliness by analyzing infrastructure characteristics like block length and intersection density. On a scale from 0 to 100, locations 50 or above are considered walkable.
- **Percent Residential |** Based on land use data from CMAP (most recent vintage at the time of analysis is 2013), the percent of acreage within a half-mile that is classified as residential was calculated. This is intended to estimate potential for non-motorized access riders (Figure 2-5).
- **Multi-Family Units |** Similar to the above, multi-family residential are more likely to achieve the densities that support transit ridership and minimize the need for auto-access infrastructure, parking, and also lessen traffic impacts at the station.
- **Households |** Using 2010 census data, the number of households within a half mile were estimated to further understand potential non-motorized access riders within the station area.
- **(Re) Development Area |** The estimation of potential redevelopment acreage was carried out by identifying large contiguous parcels of low-intensity usage that could be acquired and redeveloped at a relatively low cost and with minimal impact to station area households. The parcel and land use (such as industrial, vacant, parking) information, as well as occupancy metrics available from the CoStar real estate database, were used to perform this initial screening, but no efforts have yet been made to contact parcel owners to determine their perspective on, or receptiveness to, potential redevelopment (Figure 2-6 through Figure 2-9).
- **Pace Bus Routes |** The presence of existing Pace Bus routes highlights a station area's potential to grow its ridership outside of the half-mile walkshed without relying on riders accessing by private automobile. It also suggests the potential of creating a mobility hub and a larger potential market for commercial enterprises established as part of the TOD.

Figure 2-5: Des Plaines Land Use and Potential Station Sites

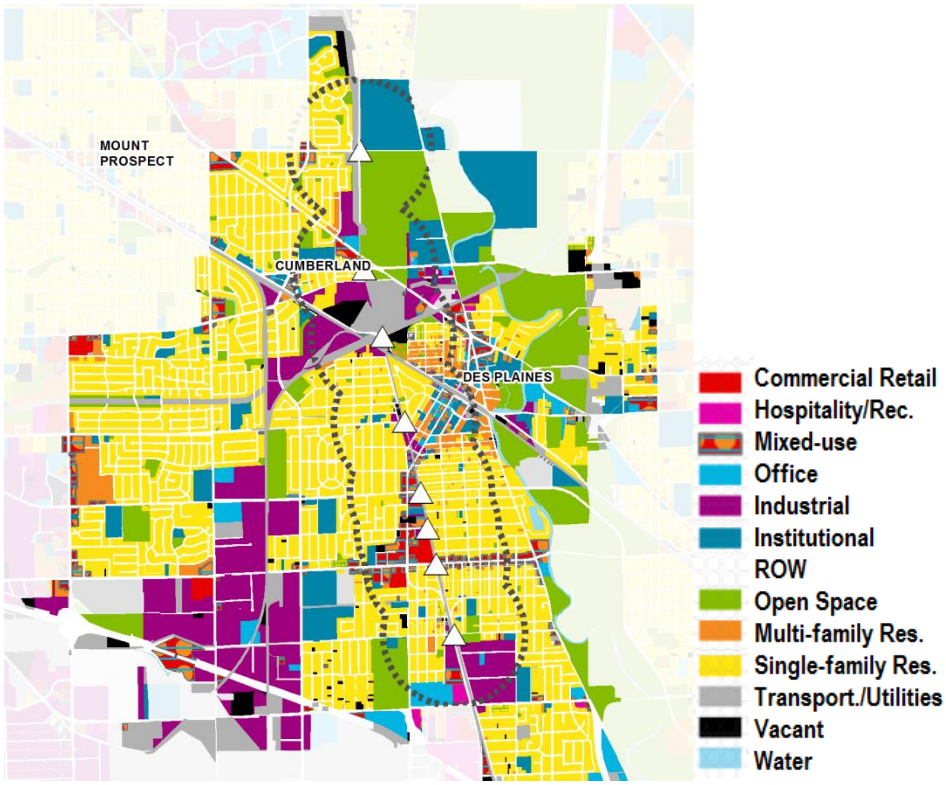


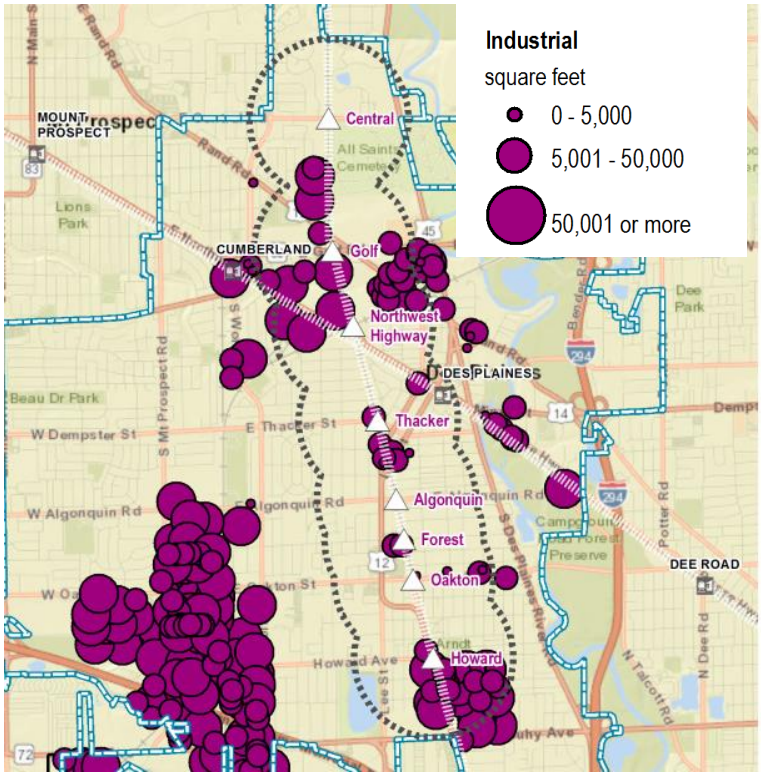
Table 2-10: Potential Station Sites - Key Station Area Characteristics

	Walk Score	% Residential in ½-mile	Multi-Family Units in ½-mile	Est. 2010 Households in ½ mile	(Re)Development Area (acres)	Pace Bus Route
Central Road	29	26%	0	2,600	2.8	none
Rand Road-Golf Road-Seegers Road	43	14%	350	1,800	10.0	234
Northwest Highway	42	32%	610	4,600	0.0	208
Thacker Street	66	55%	600	6,700	3.1	226, 230, 250
Algonquin Road	75	57%	290	4,900	2.4	226, 230, 250
Forest Avenue	73	53%	0	4,200	1.3	226, 230, 250
Oakton Street	79	49%	10	4,800	3.0	226, 230, 250
Howard Avenue	52	39%	140	5,000	0.8	250
Minimum Criteria	<50	low: <35%	low: <100	low: <3000	low <3	low: <2

To better understand the commercial real estate market framework, and particularly any large clusters that may affect potential station site locations, data on market inventory were gathered from the CoStar real estate database and mapped in Figure 2-6, Figure 2-7, Figure 2-8, and Figure 2-9. These maps highlight the largely industrial character around the Golf, Northwest Highway, and Howard locations, which can be important as this less dense use tends to be less supportive of commuter rail ridership, with some exceptions. Sites closer to downtown, like Thacker, have greater proximity to multi-family

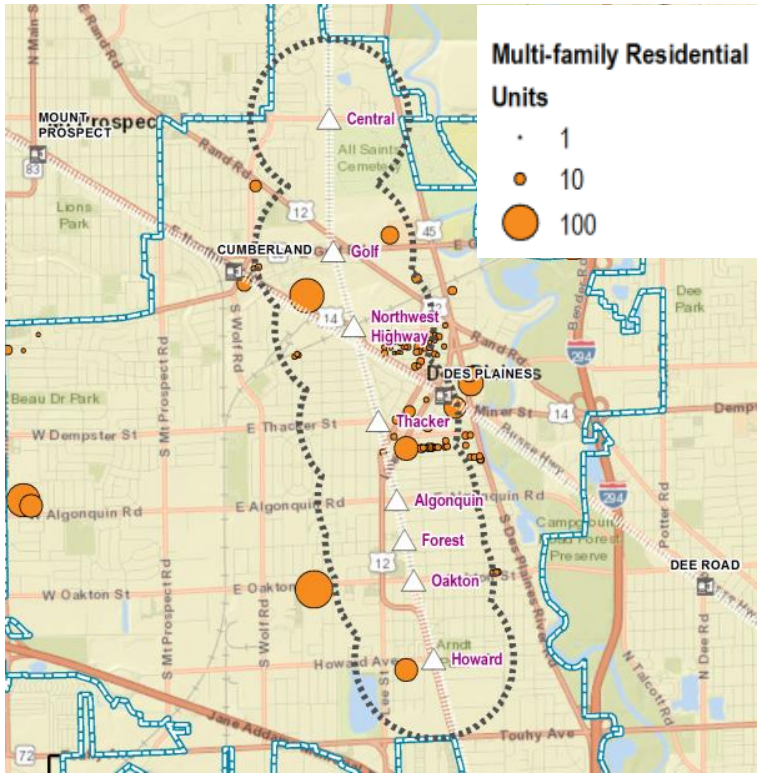
residential properties as well as office inventory, supporting both traditional and reverse commute trips. Algonquin, Forest, and Oakton have ample retail nearby—another supportive use type—thanks to the retail corridors of Lee/Mannheim and Oakton.

Figure 2-6: Commercial Inventory Maps - Industrial



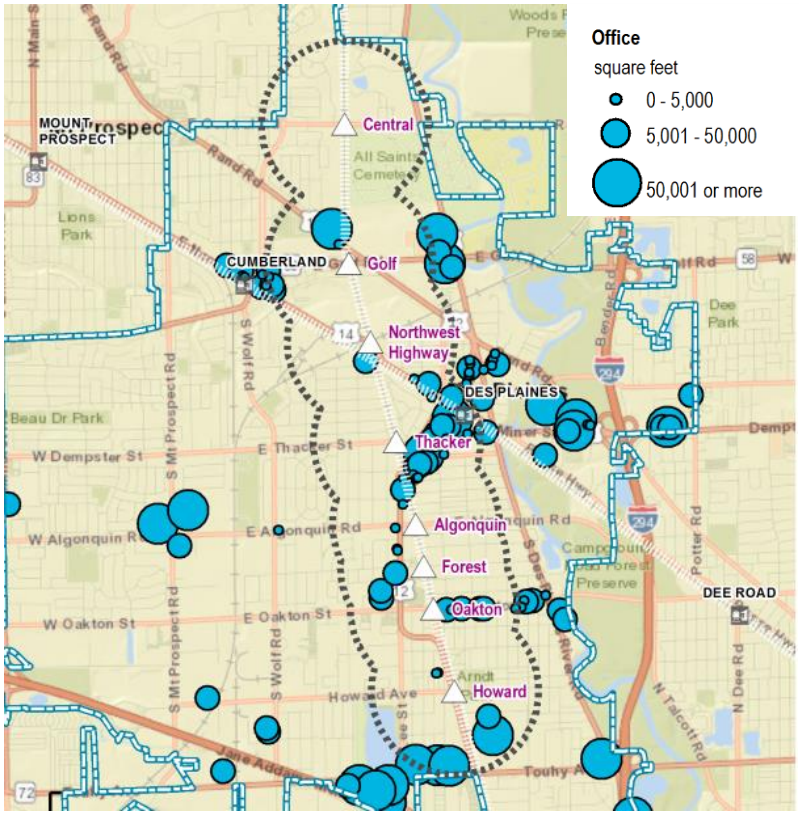
SOURCE: CoStar

Figure 2-7: Commercial Inventory – Multi-Family Residential



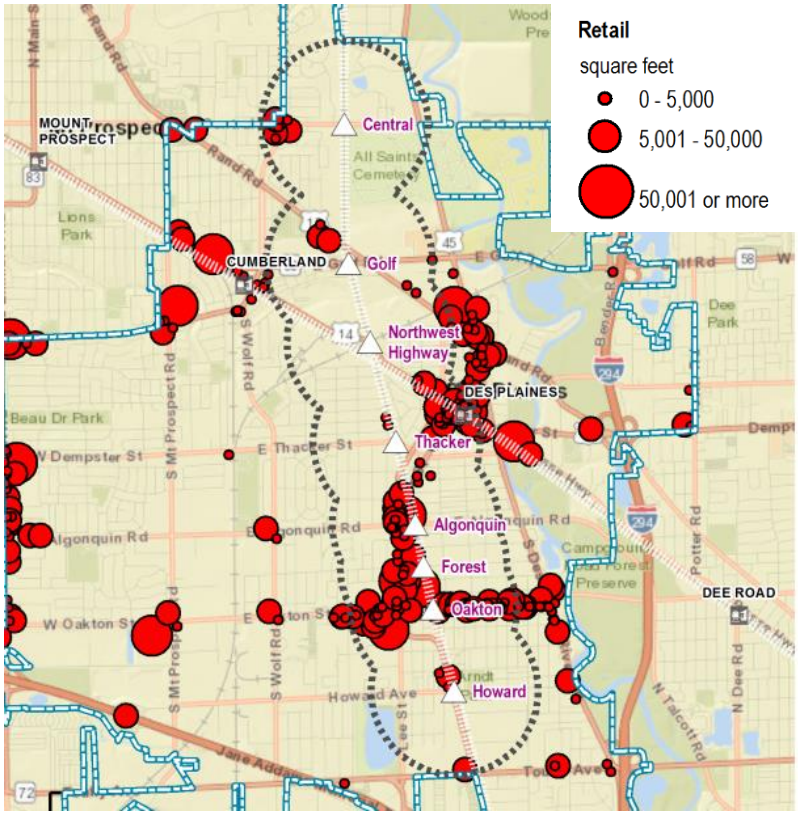
SOURCE: CoStar

Figure 2-8: Commercial Inventory – Office



SOURCE: CoStar

Figure 2-9: Commercial Inventory – Retail



SOURCE: CoStar

An overall evaluation matrix was prepared (Table 2-11), assigning one point for rail and station area characteristics exceeding the evaluation criteria (as defined in Table 2-10), zero points for not meeting the minimum, and a negative point for serious impacts.

Table 2-11: Site Evaluation Summary

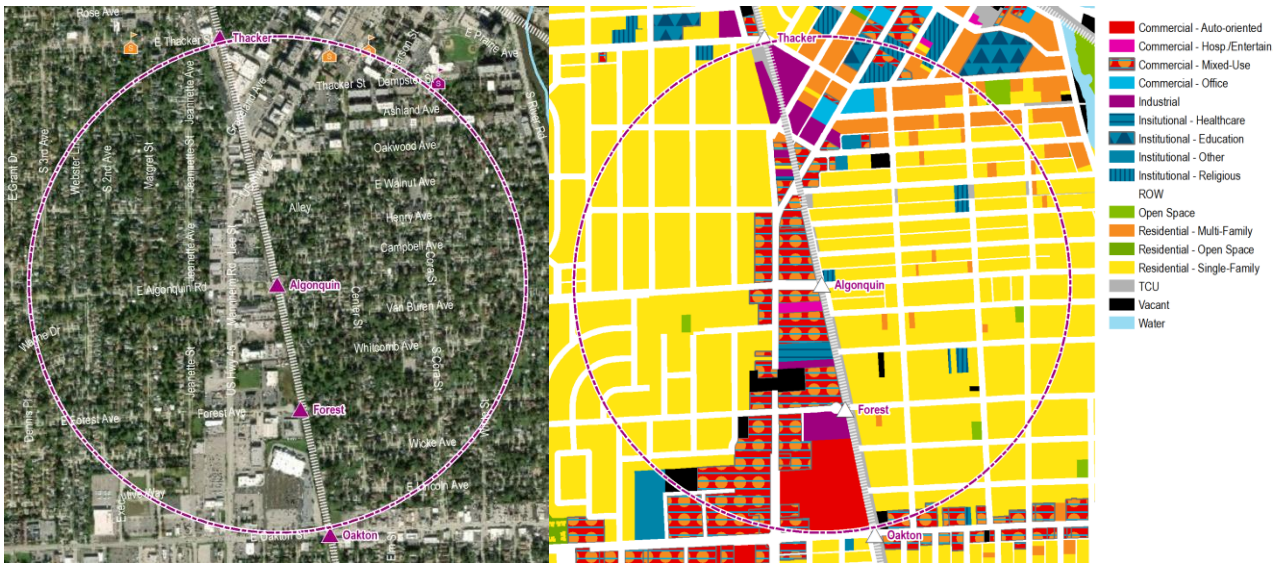
	1 CENTRAL ROAD	2 RAND/ GOLF	3 NW HIGHWAY	4 THACKER STREET	5 ALGONQUIN ROAD	6 FOREST AVENUE	7 OAKTON STREET	8 HOWARD AVENUE
Walk Score 50+	29	43	42	66	75	73	79	52
Multi-Family Units in 1/2 Mile	0	350	610	600	290	0	10	140
Households in a 1/2 Mile	2,600	1,800	4,600	6,700	4,900	4,200	4,800	5,000
(Re)Develop-ment acres	2.8	10.0	0.0	3.1	2.4	1.3	3.0	.08
Pace Bus Routes	none	Route 234	Route 208	Routes 226, 230, 250	Routes 226, 230, 250	Routes 226, 230, 250	Routes 226, 230, 250	Route 250
More than two miles from NCS Station	Serious Impact	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable	Serious Impact
More than one mile from UPNW Station	Suitable	Impact	Impact	Impact	Impact	Suitable	Suitable	Suitable
Double Track	Suitable	Serious Impact	Serious Impact	Serious Impact	Suitable	Suitable	Suitable	Suitable
At-Grade	Suitable	Suitable	Serious Impact	Suitable	Suitable	Suitable	Suitable	Suitable
Total Score	1	3	0	6	7	7	8	4
						Green = 1	Yellow = 0	Red =-1

The three sites to the north scored much lower than the other five, and were dropped from further consideration. The Howard Avenue site performed somewhat better, but given proximity to the O'Hare Transfer Station (1.5 miles), it was recommended to drop as well. The Thacker Street site generally performed well, but would serve a single track, which can negatively impact operations as opposed to the double-track sites. The remaining three sites, Algonquin, Forest, and Oakton, each offer plusses and minuses. The following discussion provides an additional assessment of these three sites.

Algonquin Road

Figure 2-10 provides an aerial and land use map of the half-mile area of the Algonquin Road site. Positives of the site include commercial land to the west that is potentially re-developable. Also, a parking lot at a church on the east side could potentially be shared by commuters on weekdays. However, this location is 0.8-mile from the UP-NW Des Plaines Station, which could be somewhat duplicative. While bus service on Lee Street is near the crossing, plans to improve Pace Route 250 as part of the Pulse system would not include a stop here (the nearest stops would be downtown Des Plaines and Oakton Street). New parking would be sited to the west side of the CN, which could create problems for the Lee Street/Algonquin intersection. The 400-foot length between the railroad and Lee could result in track crossing back-ups on the two-lane Algonquin roadway. It is recommended that Algonquin be dropped from further study.

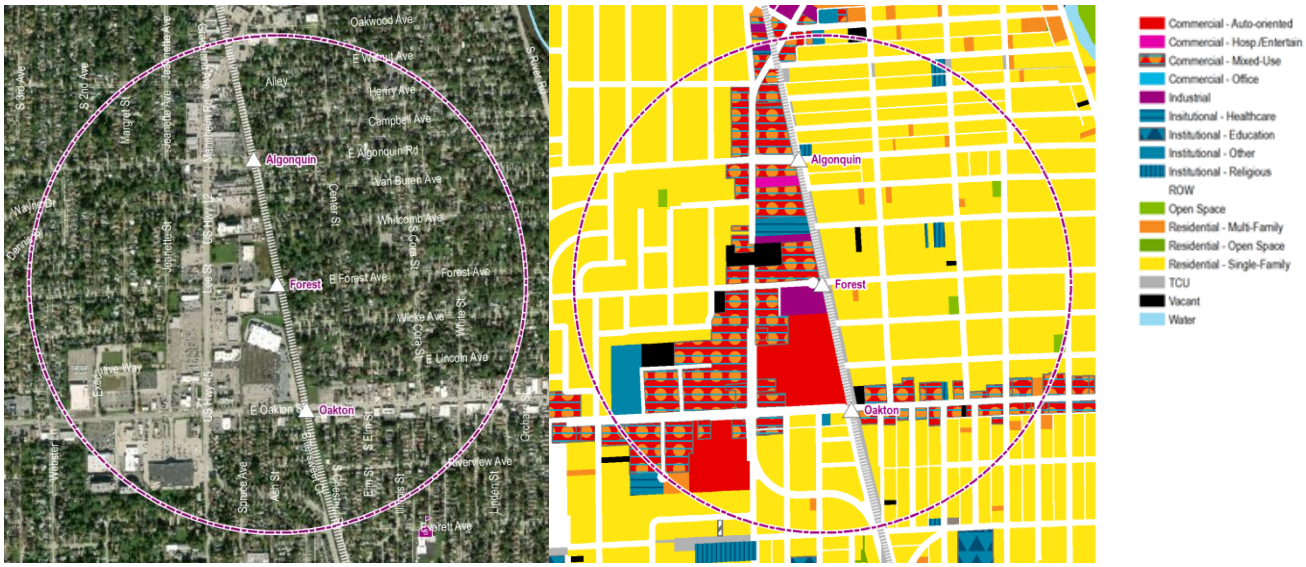
Figure 2-10: Algonquin Road Station Site - Aerial and Land Use Maps



Forest Avenue

This site is a quarter mile south of Algonquin. Forest Avenue is a local residential street that does not cross the railroad. There is a vacant 1.2-acre parcel in the northwest quadrant of the crossing, which could be used for parking. A major issue is that vehicle access would be limited to the west. Residents from areas to the east would likely benefit from walk-on access, but opportunities to construct parking or allow commuters to use street parking would probably be met with opposition. Also, without a street crossing, Metra and the CN would require a pedestrian tunnel or bridge. Although the Lee/Forest intersection is further from the rail crossing than is the case at Algonquin (i.e., 700 feet versus 400 feet), similar traffic issues would likely occur even with the proposed signalization of the Lee-Forest intersection. For these reasons, Forest is recommended to be dropped. Figure 2-11 provides an aerial and land use map of the half-mile area of the Forest Avenue site.

Figure 2-11: Forest Avenue Station Site - Aerial and Land Use Maps



Oakton Street

The Oakton Street site offers several key advantages over Algonquin and Forest, including:

- Oakton would provide good roadway access from the east and west,
- This site is more distant from existing UP-NW stations,
- Access to the Pace Pulse Dempster Line station at Lee and Oakton would be available,
- The Lee Street intersection is 1,000 feet to the west, so the potential back-up from park-n-ride lots emptying would be less likely compared to the Algonquin and Forest sites.
- If the proposed Oakton/Lee TIF district is approved, a Metra station on the NCS line at Oakton could be a significant catalyst for development. This mechanism would help to bolster investment in the area by dedicating the growth in real estate taxes to financing improvements within the district, such as a train station or other supportive infrastructure. Such improvements are likely to both benefit existing residents and businesses, as well as attract new development.
- The *Oakton/Elmhurst Road Corridor Study* (completed in 2009) established two districts that would fall partly in an NCS station area: Oakton Retail District to the west and Oakton Mixed-use District to the east. The latter established guidelines for development along Oakton Street east of the NCS line to the Des Plaines River, including mixed-use improvements along Oakton as well as a targeted redevelopment area adjacent to the rail line. Streetscaping was recommended along Oakton to create a more attractive and welcoming environment and to encourage redevelopment along Oakton Street. Oakton Retail District was positioned as a retail destination, with a combination of large-format retail outlets and mixed-use developments, including multi-family and limited single-family residential. Plans for the two districts are provided in Figure 2-13 and Figure 2-14. It should be noted that the recommendations for retail in the plan would need to be reexamined based on today's market realities and the integration of a new train station, but that it helps to identify redevelopment opportunity sites. It is believed that updated plans should place a higher emphasis on multiple-family residential and transit-oriented development.

The 1.5-acre vacant land and shuttered restaurant site to the east of the NCS line could be used for parking or a joint development project. In addition, it is understood that much of commercial properties to the west may be ripe for redevelopment, excluding the Butera Markets grocery. For these reasons, a site on the north side of Oakton Street is recommended to advance for more detailed study. Figure 2-12 provides an aerial and land use map of the half-mile Oakton site.

Figure 2-12: Oakton Street Station Site - Aerial and Land Use Maps

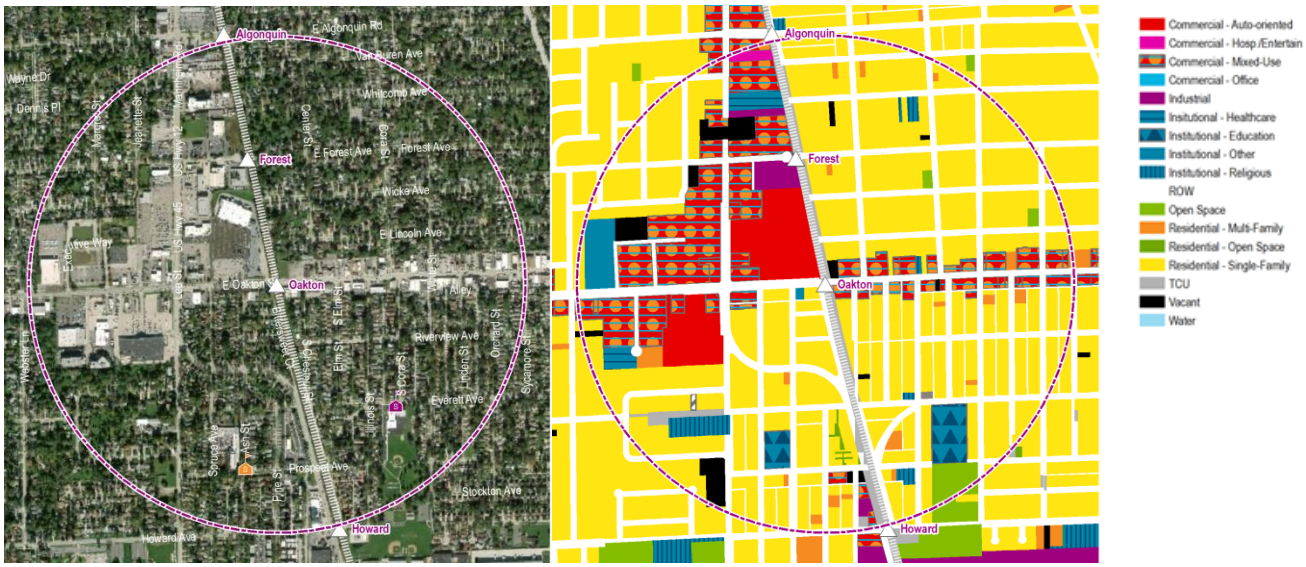
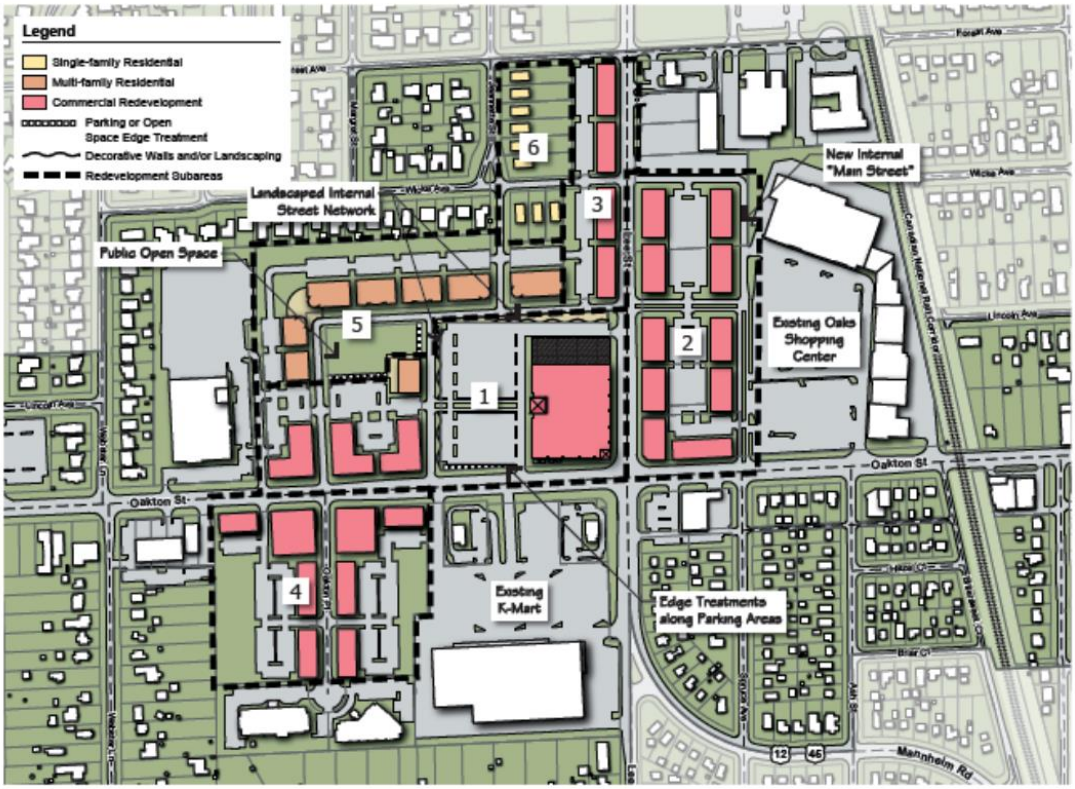
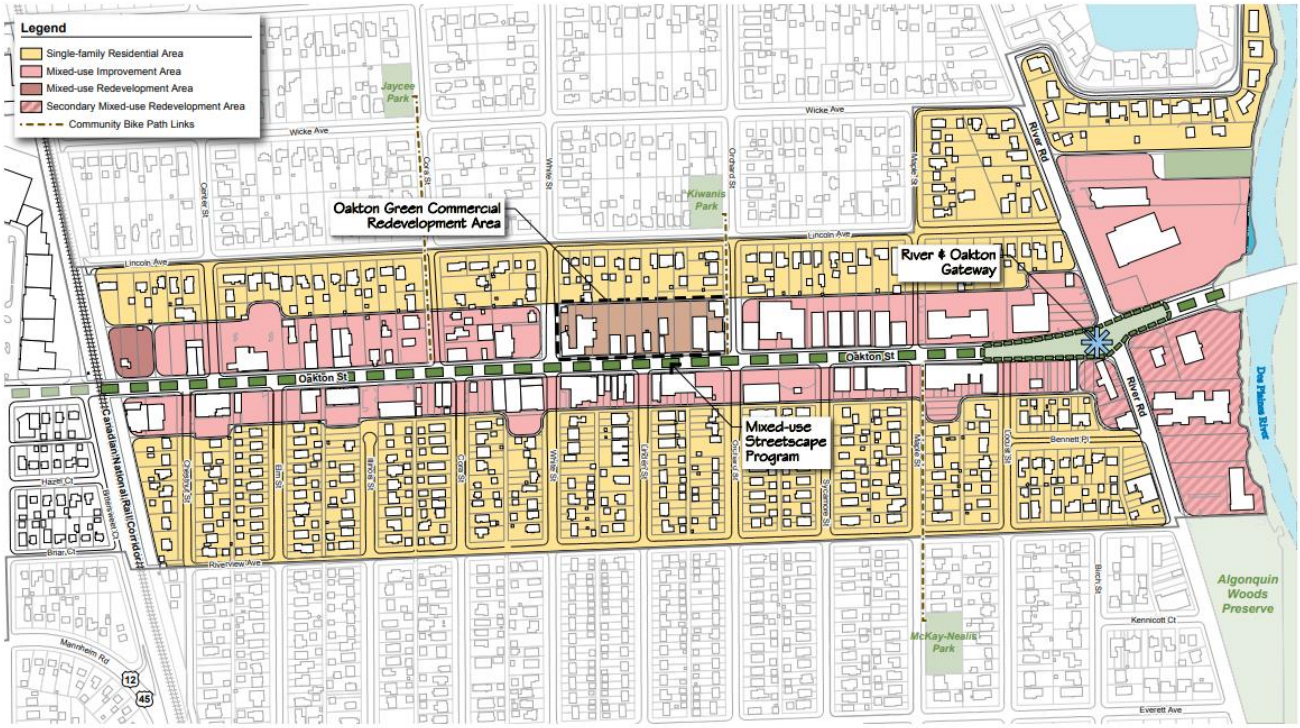


Figure 2-13: Oakton Retail District Plan



SOURCE: Oakton/Elmhurst Corridor Study (2009)

Figure 2-14: Oakton Mixed-use District Plan



SOURCE: Oakton/Elmhurst Corridor Study (2009)

2.6 Station Spacing Conclusions Applied to Des Plaines

The site screening recommended that a new NCS station be studied at Oakton Street, which would be 4.8 miles from the Prospect Heights Station to the north and 2.1 miles from the O'Hare Transfer station to the south. This review concludes that this spacing would not preclude the consideration of a new Metra station in Des Plaines. The factors leading to this conclusion include the following:

- Published guidelines suggest that commuter rail stations should be comparatively widely spaced (e.g., more than 3 miles). This is a reasonable parameter to follow if a downtown-destined service is being developed from scratch. While the resultant minimum spacing of 2.1 miles is less than published guidelines, this point should not be the basis for ruling out consideration of a station.
- The experience of larger, legacy commuter rail systems shows comparatively close spacing between stations, many with averages falling below three miles. Metra is consistent with this, with average spacing of about two miles, including 83 stations within one mile of the next inbound station.
- Based on Metra system data, there is not a clear correlation between close spacing and lower station ridership.
- New stations that have been added to the Metra network have filled gaps ranging from 2.1 to 11.9 miles, and there has not been an obvious effect on performance related to the distance between stations that were filled. It is acknowledged that Metra's most recent examples of adding infill stations have filled wider gaps (e.g., Romeoville at 7.6 and 35th Street at 9.8), compared to the gap between O'Hare Transfer and Prospect Heights of 6.9 miles.

- Analysis of NCS origins and destinations shows an average straight-line distance of 1.4 miles for riders accessing the station and the same for riders leaving the station—versus 1.6 and 1.3 respectively, systemwide. Further, among riders driving, carpooling, or taking a Pace bus to board at an NCS station, the average distance is 1.2 to 1.8 miles. Assuming that these distances should be doubled to account for the adjacent station's radius, average spacing of roughly three miles should capture the typical motorized-access Metra passenger while minimizing the service overlap.
- The availability of parking is an important component provided at Metra stations, and needs to be included in the Oakton Street Station design plans. But accommodations for walk access and egress can also be an important consideration in attracting ridership to the station. This walkability goes hand-in-hand with developing the station area to maximize the use of transit. Further, opportunities to create destinations that would be accessible by commuter rail should be fully explored. The success of the Lake Cook Road Shuttle Bug program offers evidence that station area workers are willing to use connecting bus service.
- The addition of another station on the NCS line will result in increased travel times for some current upstream riders due to deceleration/acceleration and dwell time required at the station for each stop (approximately two minutes). These impacts will need to be carefully evaluated and considered in the context of new Metra riders that the station could attract.

While station spacing can be an important element to the success of a potential commuter rail station, analysis of Metra ridership shows that spacing alone does not determine ridership performance. Service levels, station amenities, and the size of the potential ridership market are likely to be deciding factors in the feasibility of an infill station between the O'Hare Transfer and Prospect Heights Stations.

3. Existing Conditions

3.1 Introduction

This chapter lays the groundwork for the consideration of adding an infill station to Metra's NCS line in Des Plaines by describing existing and future conditions of the area surrounding the potential station site. This area will be defined in two ways:

- The larger market shed that represents the capture market of originating and destination users, and
- The half-mile radius within the immediate station area.

The chapter will cover the following topics:

- Background and purpose of a potential station
- Regional setting of the proposed station
- Recommended location and the spacing between adjacent stations
- Definition of the station's market sheds, both origin and destination
- Socioeconomic trends of the station market sheds
- Transportation resources in the local area
- Travel patterns within the local area
- Station area land use, zoning, infrastructure, and other characteristics
- Identification of major travel generators, including largest area employers, cultural attractions, and shopping areas
- Environmental screening
- Land acquisition and potential displacement
- Conflicting land uses or other topics of concern

3.2 Background and Station Purpose

Railroad lines crisscross the City of Des Plaines, carrying both commuter and freight traffic. Two of these lines, the Union Pacific Northwest (UP-NW) and the North Central Service (NCS) serve Metra commuter trains. The UP-NW line operates between Chicago and Harvard in McHenry County, and includes two stations in Des Plaines: Cumberland and Downtown Des Plaines. With the UP-NW cutting diagonally across the northern one-third of the City, the southern two-thirds of Des Plaines is not well-served by transit. The NCS line, operating between Chicago and Antioch in Lake County, runs north-south across the 6-mile length of Des Plaines with no station stops. As documented in the previous chapter, the NCS has a 6.9-mile long gap without a station between the Prospect Heights Station north of the City, and the O'Hare Transfer Station to the south. In addition, the *Connecting Cook County Long Range Transportation Plan* (Cook County, August 2016) identified much of the area of south Des Plaines as a transit desert, that is, having high demand but lacking access to high-quality transit.

The City has identified a number of large and contiguous commercial properties that are vacant or under-utilized near the NCS, which could potentially be redeveloped. A new station could spur the development process to affect this transition in land use. In addition, the residential neighborhoods near the NCS tend to be comparatively dense, with smaller lot single-family or multi-family residential, which would complement a proposed transit investment. Many of these neighborhoods contain households that are classified as low-moderate income, based on the Community Development Block Grant criteria. The City has also advanced plans to develop areas east of the NCS as mixed use (*Oakton Street/Elmhurst Road Corridor Study*, Des Plaines, 2009).

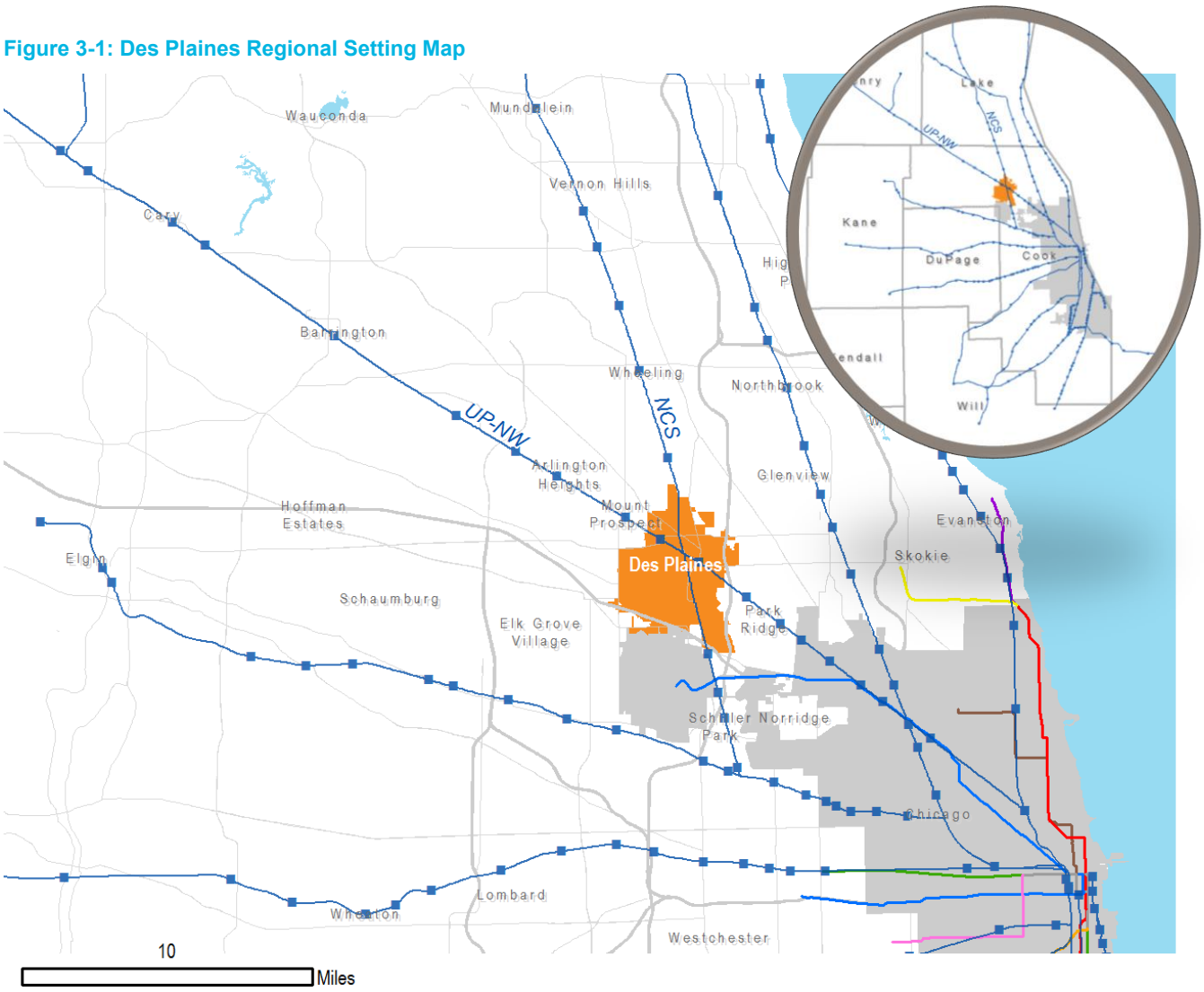
It should be noted that by providing direct access to O'Hare Airport, the NCS line offers unique service on the Metra system. The NCS O'Hare Transfer Station will have improved connections to the Airport terminals from the extension of the Airport Transit System (ATS), which is expected to be fully operational for the 2019-2020 holiday season. This improvement could give users of a Des Plaines NCS station convenient access to O'Hare Airport terminals, including both air travelers and workers.

This Des Plaines Station Feasibility Study will build upon previous plans and studies completed for the City, which are summarized in Section 3.8.1, *Prior Planning Studies*.

3.3 Regional Setting

The City of Des Plaines is located in Cook County, and shares borders with the City of Chicago, Elk Grove Village, the Village of Mount Prospect, the Village of Glenview, the City of Park Ridge, and the Village of Rosemont. The population of Des Plaines is higher than its suburban neighbors (58,193 in 2017, compared to 32,776 in Elk Grove Village; 53,930 in Mount Prospect, 47,659 in Glenview, 37,494 in Park Ridge, and 4,151 in Rosemont). The City is located between I-90 and I-294, approximately 17 miles northwest of downtown Chicago (Figure 3-1).

Figure 3-1: Des Plaines Regional Setting Map



3.4 Selected Site

The previous chapter, *Station Spacing and Site Selection*, examined eight possible sites for a new station in Des Plaines along the Metra NCS line, ultimately recommending a site at Oakton Street. An aerial photograph of the surrounding area of the recommended site is provided in Figure 3-2. At Milepost 19.2, the proposed NCS Oakton Street Station would be placed in Metra Fare Zone D, which also includes the O'Hare Transfer and Rosemont Stations. Prospect Heights is a Zone E station.

The review of station spacing indicated that the Oakton Street site is 4.9 miles from Prospect Heights and 2.1 miles from O'Hare Transfer.

Figure 3-2: Oakton Site Aerial

3.5 Station Elements

Given the availability of vacant or under-utilized land, it is recommended that the station and parking facilities be placed on the north side of Oakton Street. Major elements of the station would include:

- Station Building
- Platforms
- Parking
- Pedestrian Track Crossing

The potential to redevelop portions of the existing Oaks Shopping Center to accommodate the station waiting area and commuter parking will be considered. Further discussion of the potential station site and plan is provided in *Chapter 7: Site Impacts*.

3.6 Definition of Station Market Sheds

Users of a proposed Des Plaines Oakton Station would likely be either: 1) area residents accessing the NCS traveling to downtown Chicago or other destinations served by the line, or 2) persons originating from other stations on the line traveling to destinations in the area served by the Oakton Station. A key part of the analysis to estimate demand for the proposed Des Plaines station is to define the area that residents would be drawn from, representing a catchment area for originating riders of the station. A second area must then be determined for riders alighting at the station to reach their trip destinations. Passenger trip data from a Metra 2016 survey describes riders traveling during the weekday AM period (i.e., before noon), and as such, are assumed to be starting their Metra trip (i.e., from their residence). Travel during the PM is assumed to be the rider's return trip for the day.

3.6.1 Rider Origin Market

The Oakton Station origin market shed was based on the unique area that is nearest to the proposed Oakton Station site in relation to other Metra stations (Figure 3-3). This approach results in a reasonable degree of correlation with station rider origins—though no methodology perfectly models human behavior in travel patterns (see Figure 3-4). The potential Oakton Station market shed as defined here was used in all subsequent analysis of the origin market.

Figure 3-3: Distance-based Market Sheds

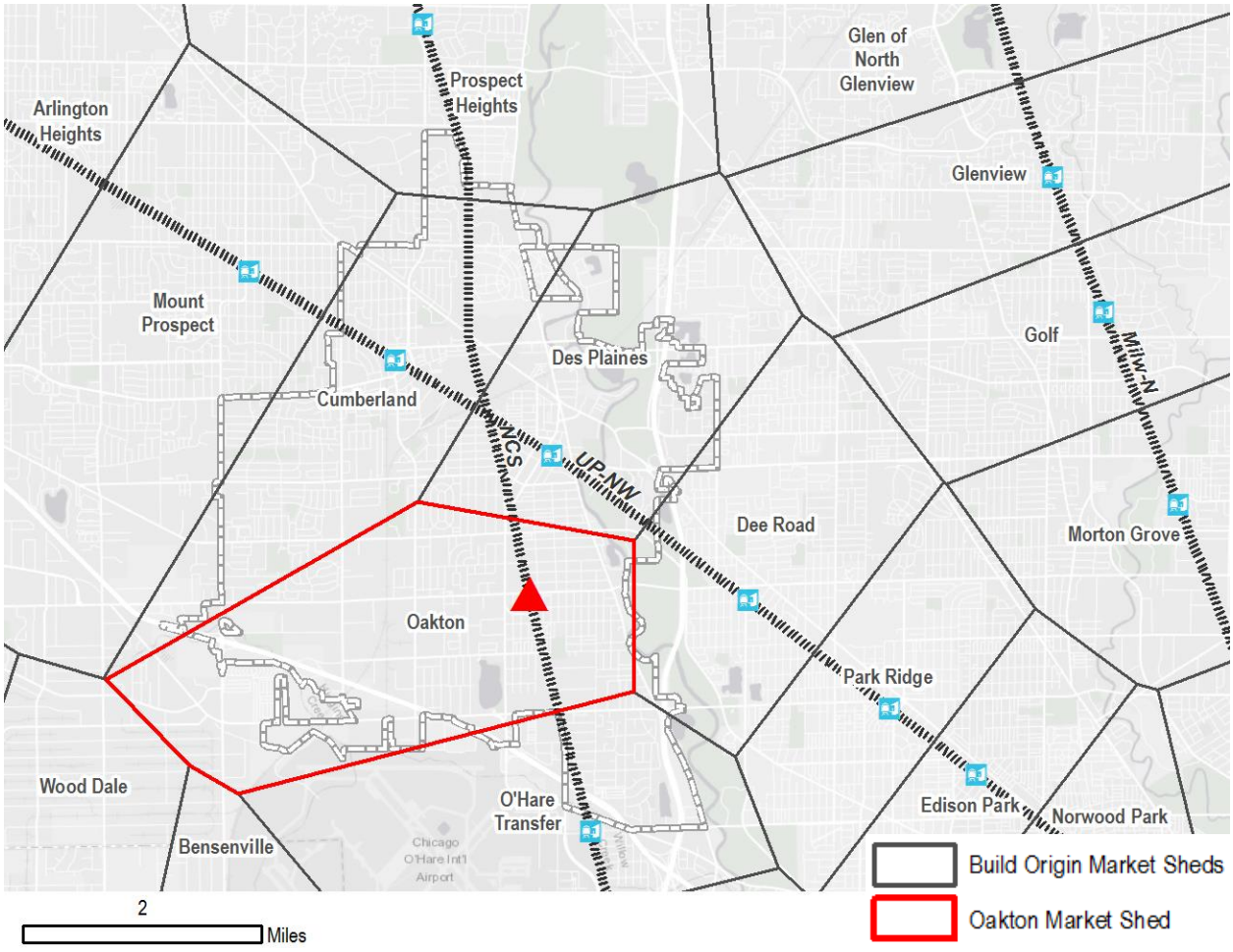
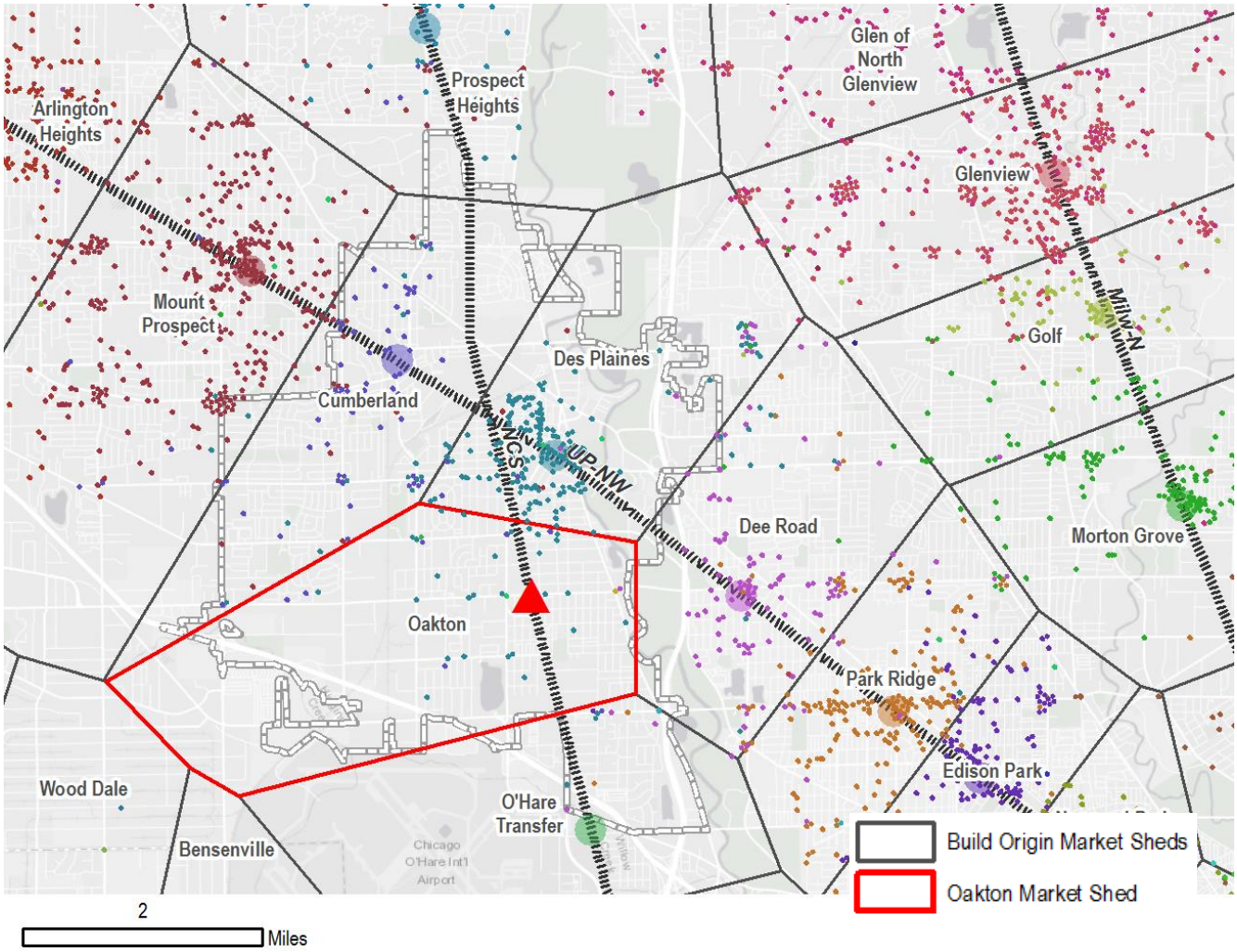


Figure 3-4: Market Sheds with 2016 Origins by Boarding Station



SOURCE: Metra 2016 Origin-Destination Survey

Based on 2016 data from Metra, 148 originating riders (“origins”) are located within the proposed Oakton Station market shed. (Note that the mapped origins are weighted survey responses, with each dot representing multiple riders.) Most origin riders currently use UP-NW stations: 66 percent board the Des Plaines Downtown Station and 16 percent board the Cumberland Station. Just 11 percent board the O’Hare Transfer Station on the NCS Line (Table 3-1). Most (85 percent) of these origins within the Oakton station market shed access the station via automobile, with 57% driving alone, 25% being dropped off, and 2% carpooling. Of the remaining, 5 percent walk, 5 percent bike, and the rest take a Pace bus or some other means of travel.

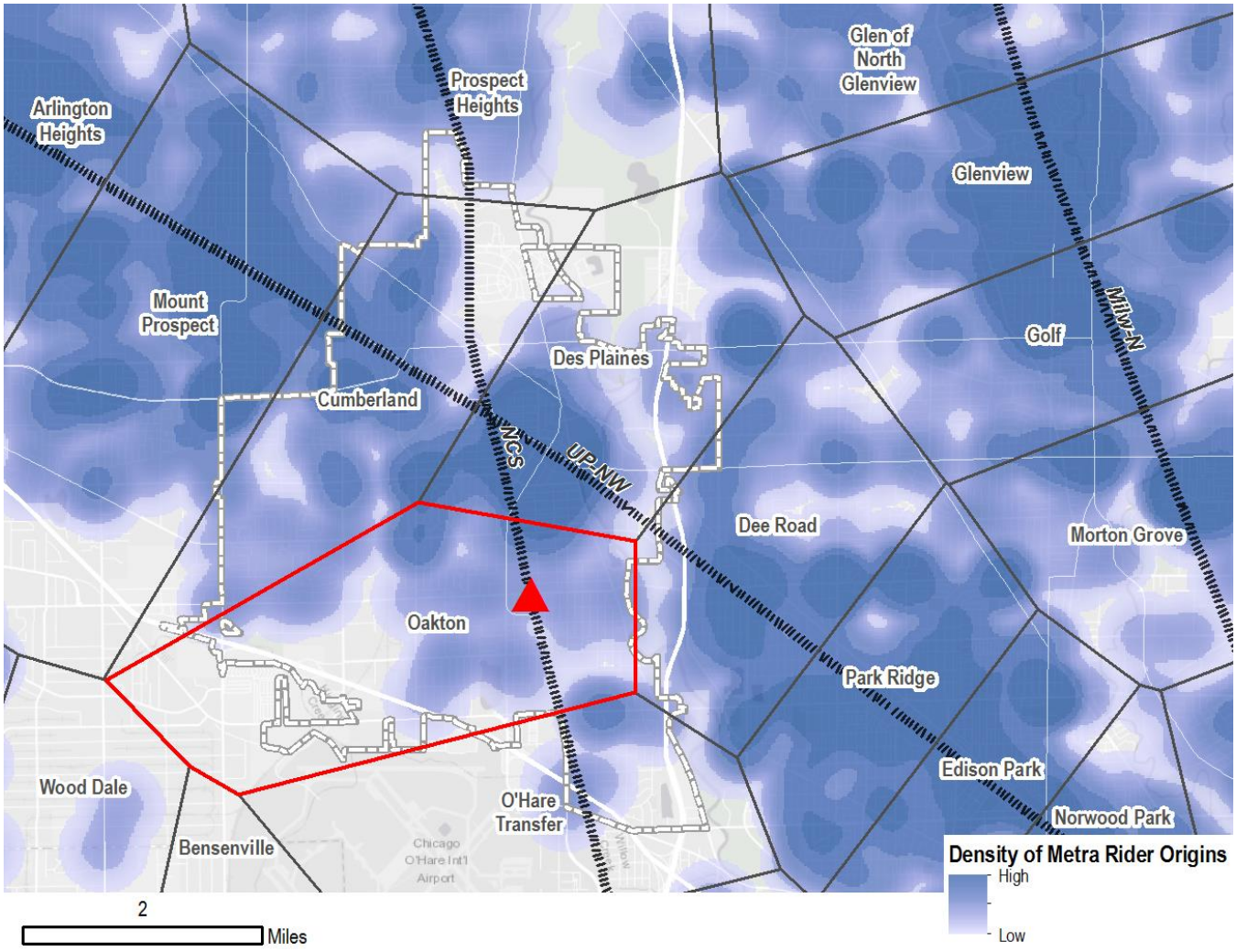
Table 3-1: Metra Origin Riders in Des Plaines Oakton Street Station Market Shed by Station of Use

Boarding Station	Rail Line	Weighted Origins	% of Total
Des Plaines	UP-NW	98	66%
Cumberland	UP-NW	24	16%
O'Hare Transfer	NCS	16	11%
Dee Road	UP-NW	4	3%
Other		6	4%
Total		**148**	**100%**

SOURCE: Metra 2016 Origin-Destination Survey

A heat map of the origins for the potential Oakton Station and nearby stations is depicted in Figure 3-5, indicating that many of the existing riders within the Des Plaines NCS market shed are in the immediate proximity of the potential site at Oakton Street. These riders reside within Des Plaines, though the shed does capture a small portion of Elk Grove Village at the southwest corner (see also).

Figure 3-5: Density of 2016 Metra Rider Origins (0-3 riders per acre)

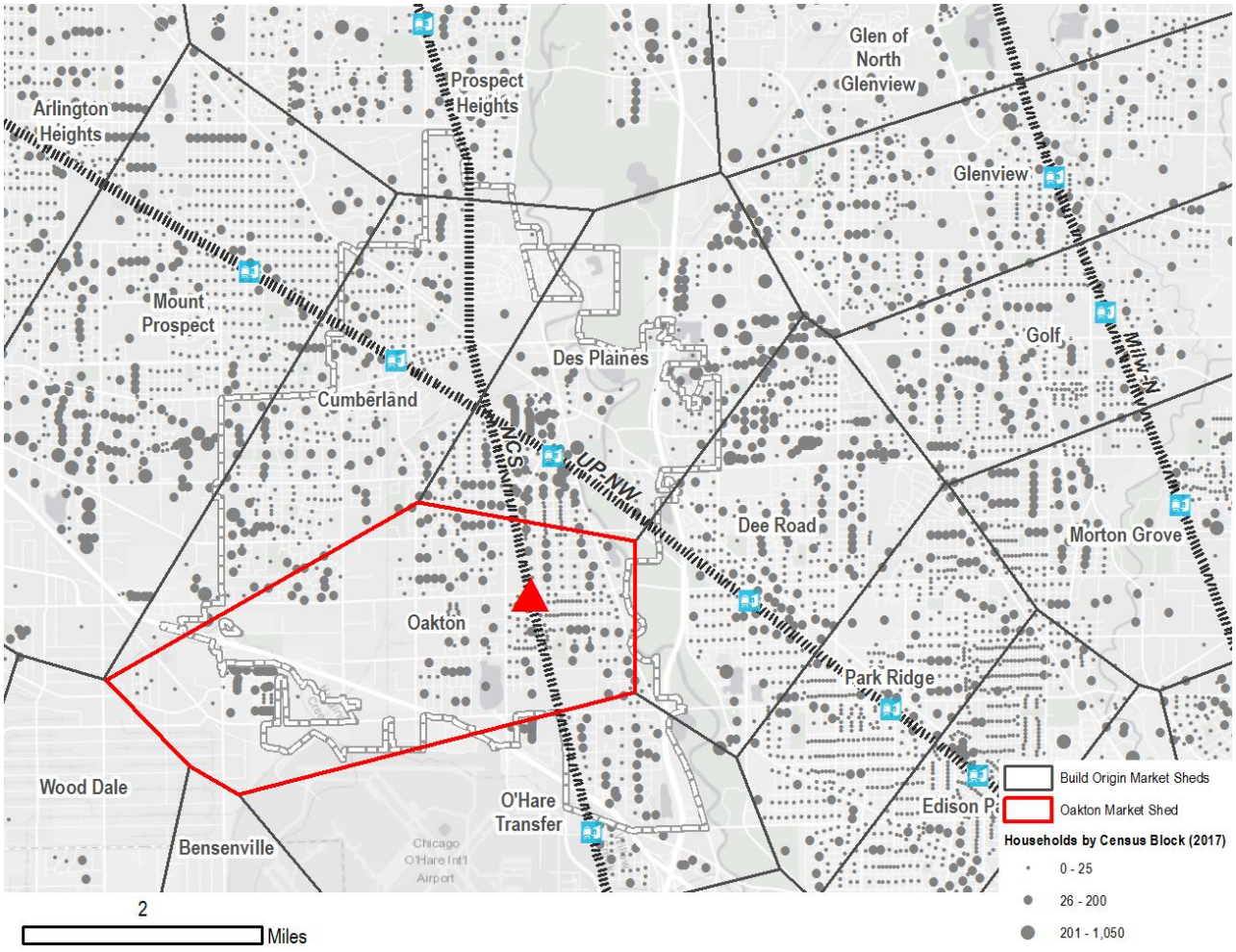


SOURCE: Metra 2016 Origin-Destination Survey

3.6.1.1 Socioeconomic

Using 2017 data from Esri Business Analyst (based on US Census American Community Survey (ACS) data), the estimated number of people in households within the proposed market shed was tabulated: roughly 22,000 people and 7,000 households (see Figure 3-6). In terms of employment, the local labor force totals about 11,000 employees, according to 2015 Census Longitudinal Employer-Household Dynamics (LEHD) data. As can be seen in Figure 3-6, large portions of the western part of the market shed do not report households—most of this area contains industrial and transportation-related land uses.

Figure 3-6: Households by Census Block (2017)



SOURCE: Esri Business Analyst 2017 Data

Based on analysis of 2015 Census LEHD origin-destination data, there are just over 900 Chicago central business district (CBD) workers living within the potential Oakton Station origin market shed (this is an important metric since the downtown work commute is Metra's primary market). The distribution and density of these workers is shown in Figure 3-8. For reference, origin market sheds were created for existing stations under "No Build" conditions using the same methodology as above, but excluding the Des Plaines Oakton Street Station and thus retaining a larger area for adjacent stations, which no longer lose territory to the Oakton Station (see Figure 3-7). In these No Build conditions, there are 1,360 CBD workers in the nearby UP-NW Des Plaines Station shed, 1,540 for UP-NW Cumberland, 2,250 for UP-NW Dee Road, and 560 for NCS O'Hare Transfer.

Figure 3-7: Distance-Based Origin Market Shed (No Build Conditions)

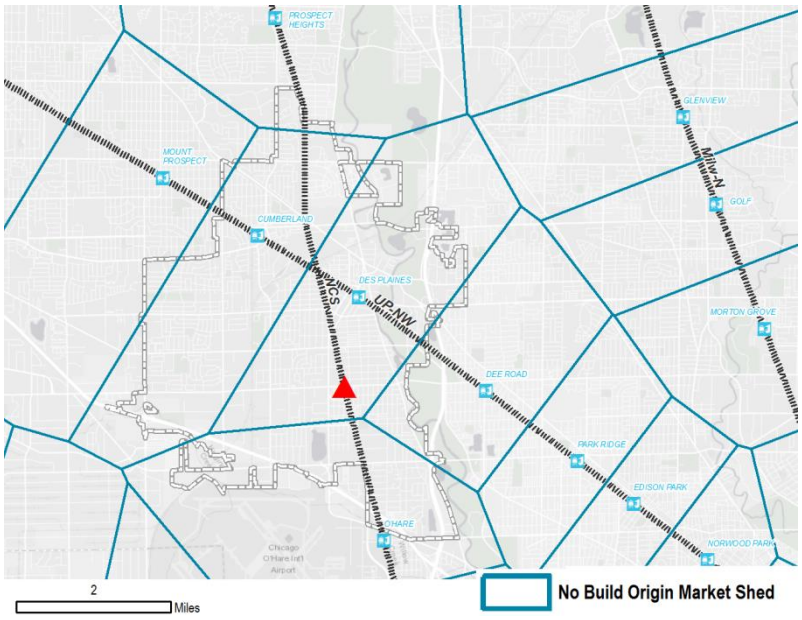
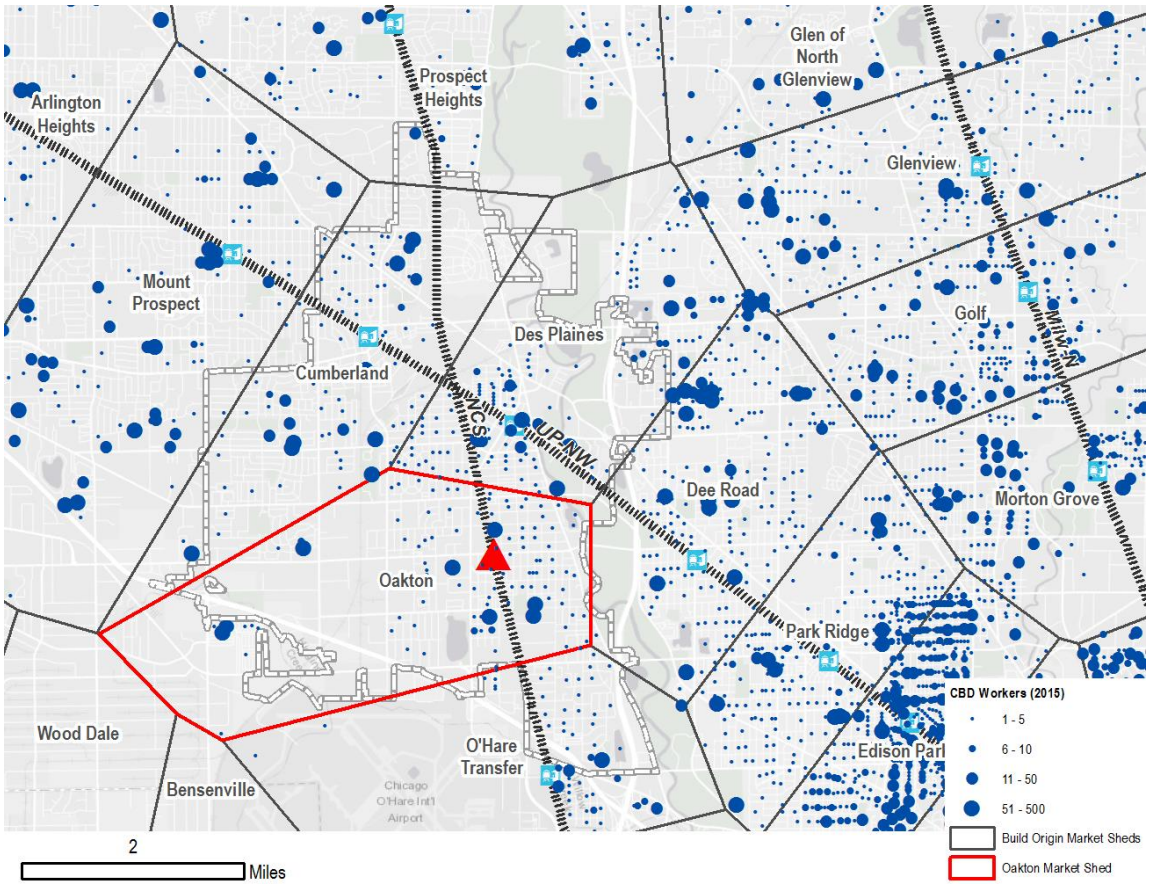


Figure 3-8: CBD Workers per acre (2015)

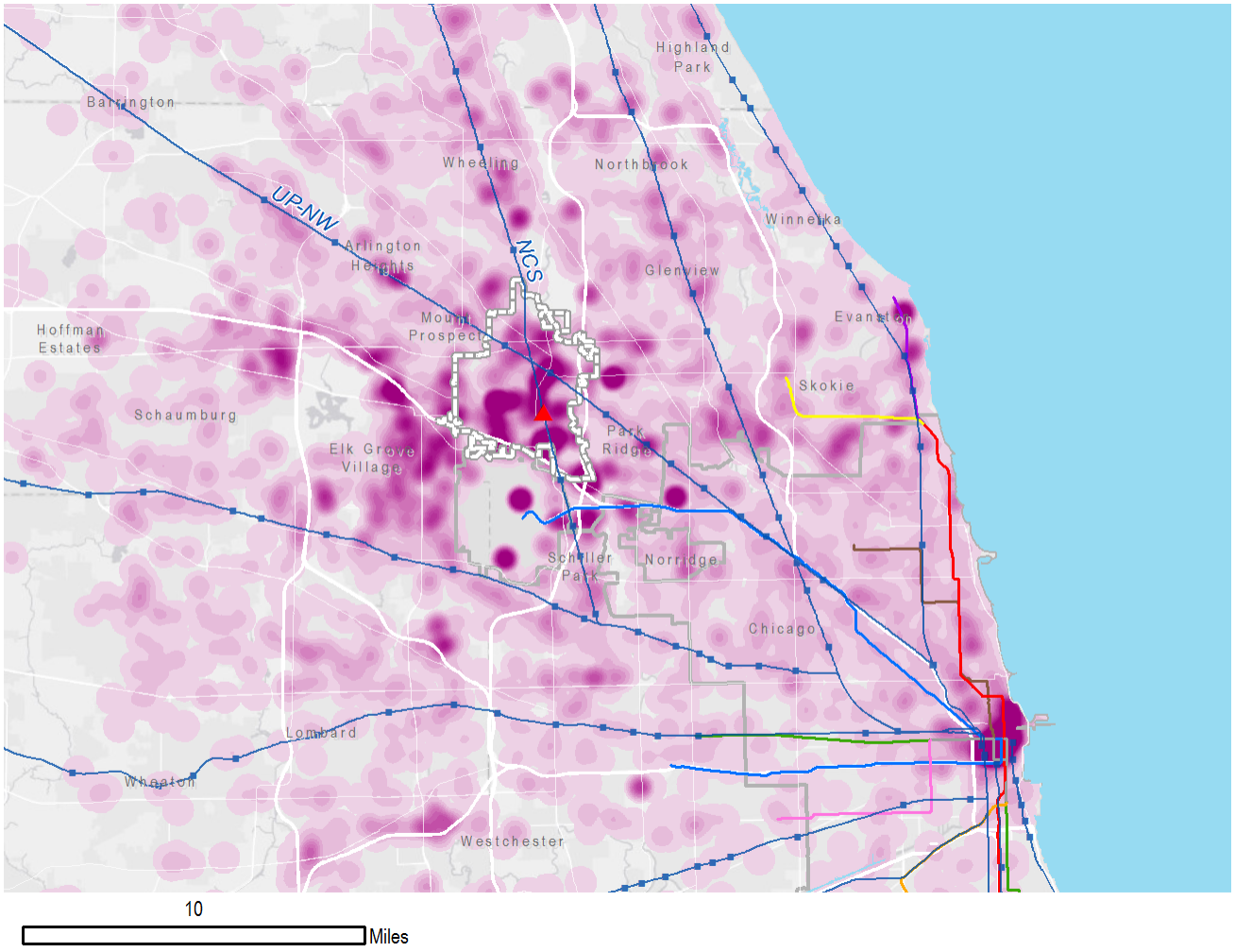


SOURCE: LEHD (2015)

Using the LEHD data to understand work trips outside of the typical downtown commute, Figure 3-9 illustrates the density of employment locations of workers residing within the Oakton station origin shed. Among the 10,125 workers living in the Oakton market shed and working within the Chicago metropolitan area, the greatest densities are in downtown Chicago, Des Plaines, and Elk Grove Village.

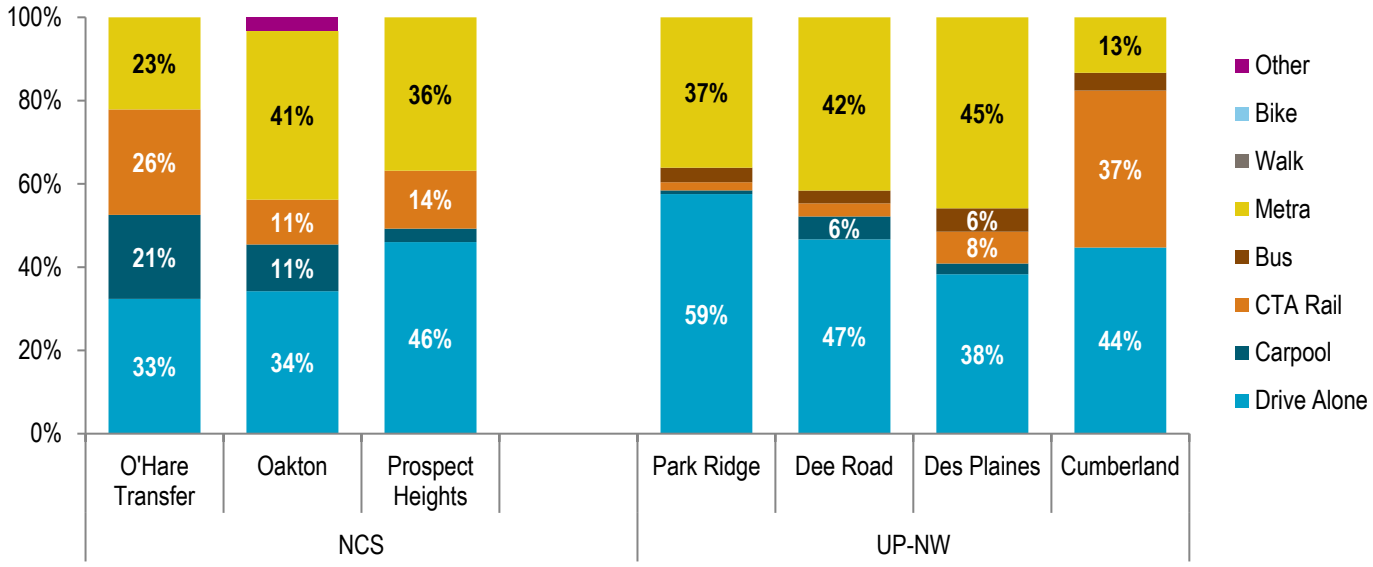
When evaluating the commuter flows between the origin market shed and the primary destination for area commuters (i.e., downtown Chicago), it is also useful to consider the reported travel mode used. According to census data, among the Chicago central business direct (CBD) commuters living in the Oakton origin shed, 41% commuted by Metra, 45% by driving or carpooling, and 11% by CTA rail. As the census survey instrument does not allow for multi-modal trips, it is not possible to identify when, for example, a bus is used to access a commuter rail station, or CTA rail is used to complete a line-haul bus trip. Comparisons by mode across stations are provided in Figure 3-10. The Oakton station market shed has similar proportions to other origin sheds. The spatial distributions of these mode shares are shown in Figure 3-11 and Figure 3-12.

Figure 3-9: Work Site Density of Oakton Station Origin Shed Residents



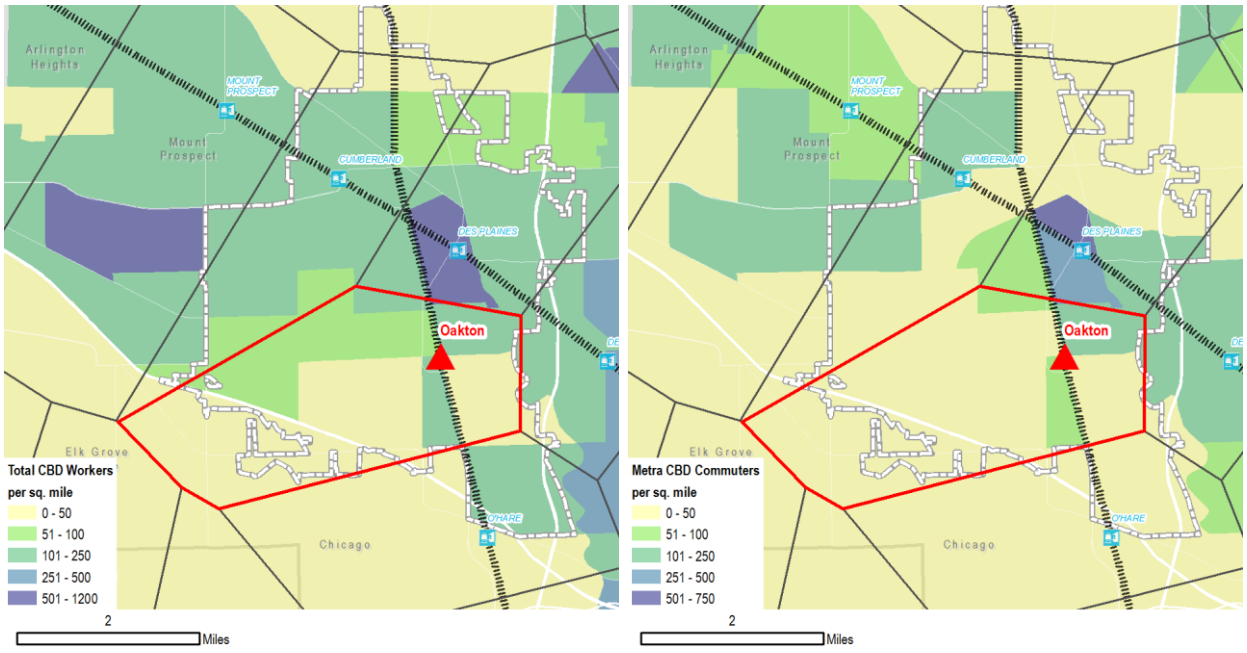
SOURCE: LEHD (2015)

Figure 3-10: CBD Commuter Mode Share by Rider Origin Market Shed



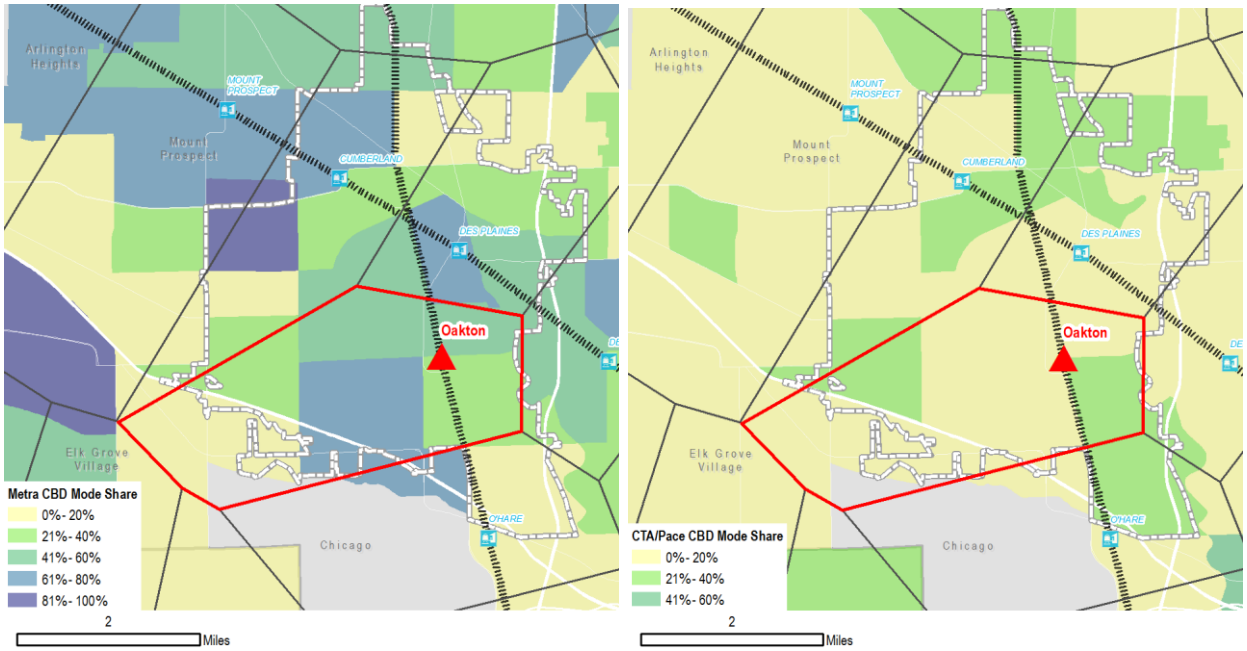
SOURCE: Census Transportation Planning Products (CTPP) 2010 (ACS 2006-2010)

Figure 3-11: Chicago CBD Worker Density, Total and Metra Commuters



SOURCE: CTPP 2010

Figure 3-12: Chicago CBD Mode Share by Census Tract



SOURCE: CTPP 2010

3.6.1.2 Land Use

As noted above and illustrated in Figure 3-14, the potential Oakton Station is situated in what is currently a primarily non-residential area. Of the parcel acreage in the market shed, 23% is industrial land use, compared to a maximum among nearby stations of 8% at Cumberland. Tied for most prevalent land use type is single-family residential (also 23%) followed by transportation and utilities (13%, or 31% when including right-of-way). The Oakton Station market shed has a lower amount of multi-family residential in comparison with UP-NW stations like Des Plaines and Dee Road, but a larger share of commercial space.

Figure 3-13: Land Use Acres of Oakton Station and Adjacent NCS / UP-NW Station Market Sheds

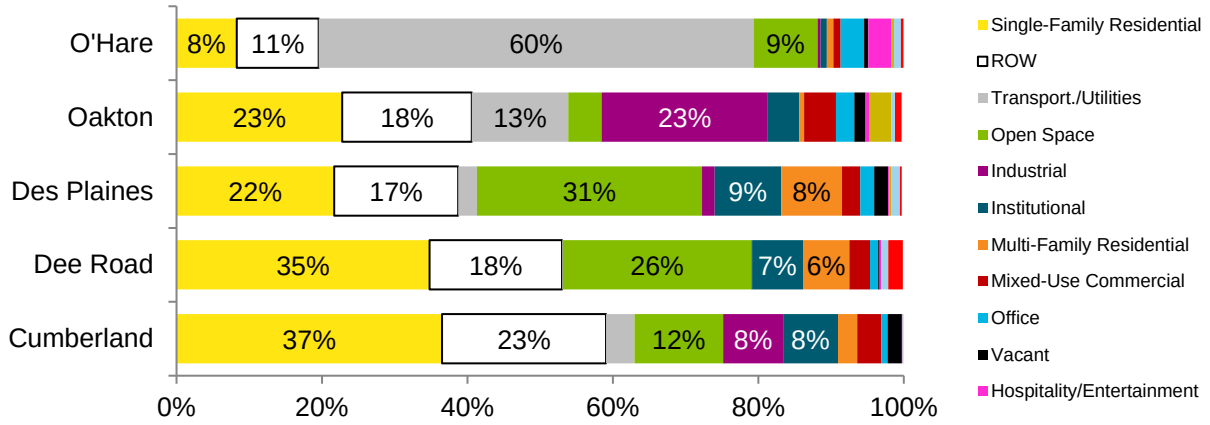
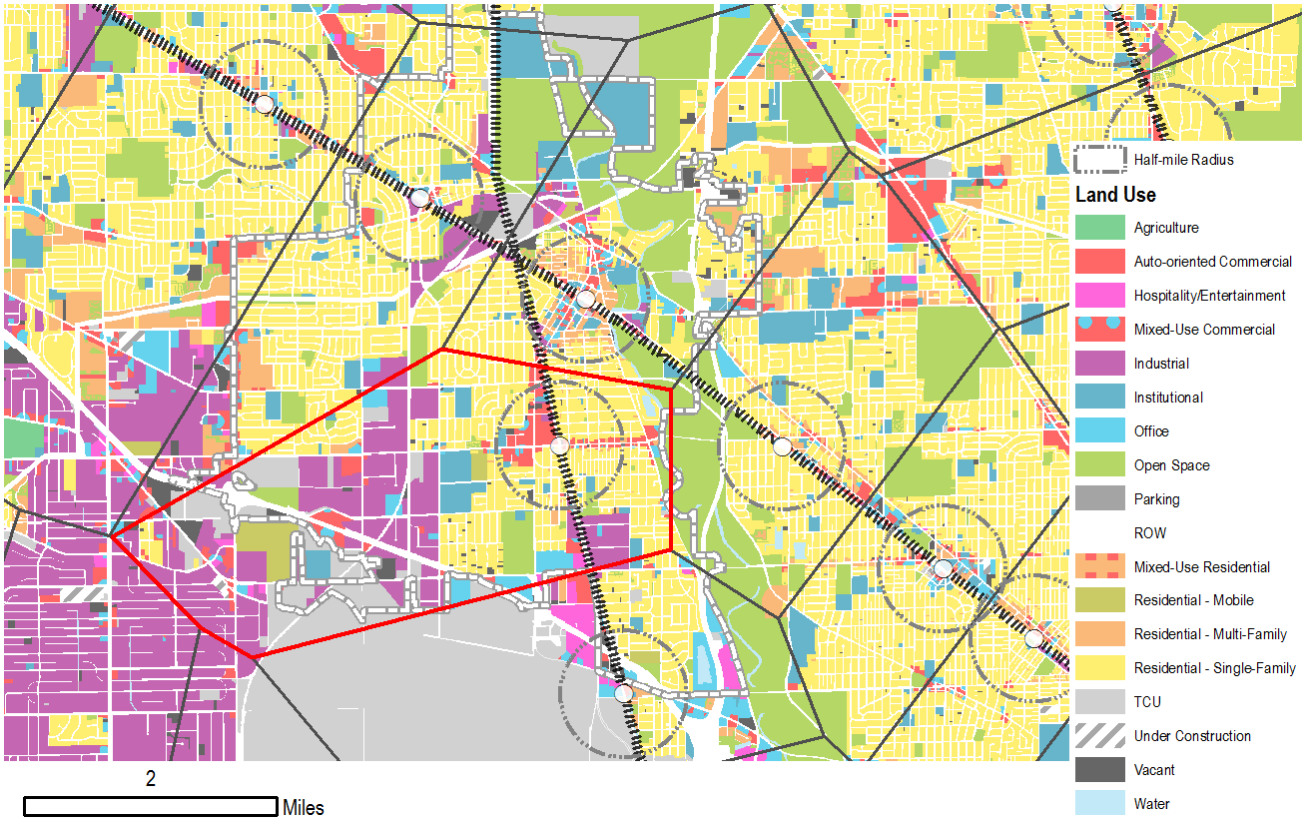


Figure 3-14: Land Use (2013)



SOURCE: CMAP (2013)

Table 3-2: Land Use Acreage of Des Plaines Oakton Street Station Market Shed

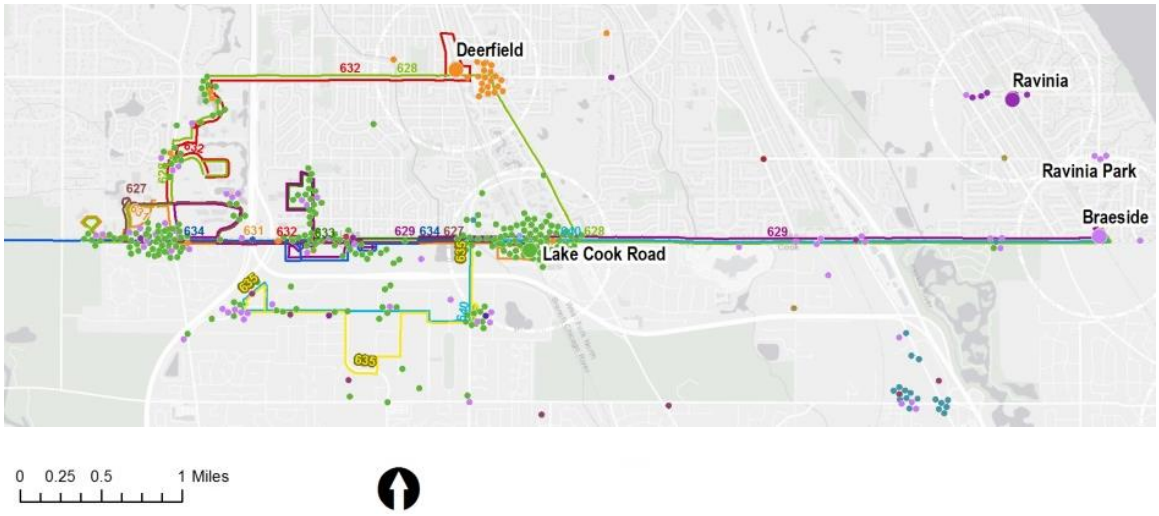
Land Use	Acres	Percent
Industrial	974	23%
Single-Family Residential	971	23%
ROW	759	18%
Transport/Utilities	565	13%
Open Space	195	5%
Mixed-Use Commercial	186	4%
Institutional	184	4%
Mobile Homes	127	3%
Office	108	3%
Vacant	65	2%
Auto-Oriented Commercial	38	1%
Multi-Family Residential	29	1%
Hospitality/Entertainment	23	1%
Water	22	1%
Under Construction	8	0%
Mixed Use Residential	5	0%
Grand Total	**4,261**	**100%**

SOURCE: CMAP (2013). Values are rounded.

3.6.2 Rider Destination Market

The typical destination market area of a rail station is the distance one can easily walk in about ten minutes—usually a half mile. However, several suburban Metra stations in the Chicago area are served by distributor buses that are run by either Pace or private employers; these buses can transport workers from their train to places of employment or other destinations. A well-known example of this is Lake Cook Road Station, as illustrated in Figure 3-15, which has numerous distributor buses to make connections to office parks off I-94 and I-294. As successful as these Pace "Shuttle Bug" routes have been, this approach is not easily replicated, as it requires relatively high employment densities and active employer engagement.

Figure 3-15: 2016 Metra Destinations & Distributor Shuttle Routes



SOURCE: Metra Origin-Destination Survey (2016)

Analysis of the 2016 Metra Origin Destination Survey was conducted to better understand how far riders were able or willing to travel to non-downtown destinations by connecting Pace bus or private shuttle, based on straight line distances. After removing outliers beyond the 90th percentile, the Metra system wide weighted average distance was 2.3 miles for Pace bus and 1.9 miles for private shuttle (Table 3-3). Among this filtered destination dataset, 18% of destinations were reached by Pace bus or private shuttle, while walk egress accounted for 53%.

Narrowing the data down to suburban stations similar to the potential Oakton station (i.e., located within suburban fare zones B-D), stations were analyzed based on whether they are in a primarily residential or a non-residential location, with the latter defined as less than 40% of the half-mile area designated residential. The Oakton station area is 49% residential, and thus in the residential category.

The average distance traveled to a work or destination location from a primarily residential station was about the same for Pace bus (2.3 miles). Distances varied more greatly between residential versus non-residential stations for egress by walking (0.3 miles at residential locations vs. 0.6 at non-residential) and egress by private shuttle (2.3 miles at residential locations versus 1.3 miles at non-residential). Bike distances are consistently around one mile. Pace bus trips are more common in non-residential locations (13% vs. 7% of trips), and walk trips are more common in residential locations (64% vs. 53%). Otherwise the proportions are similar.

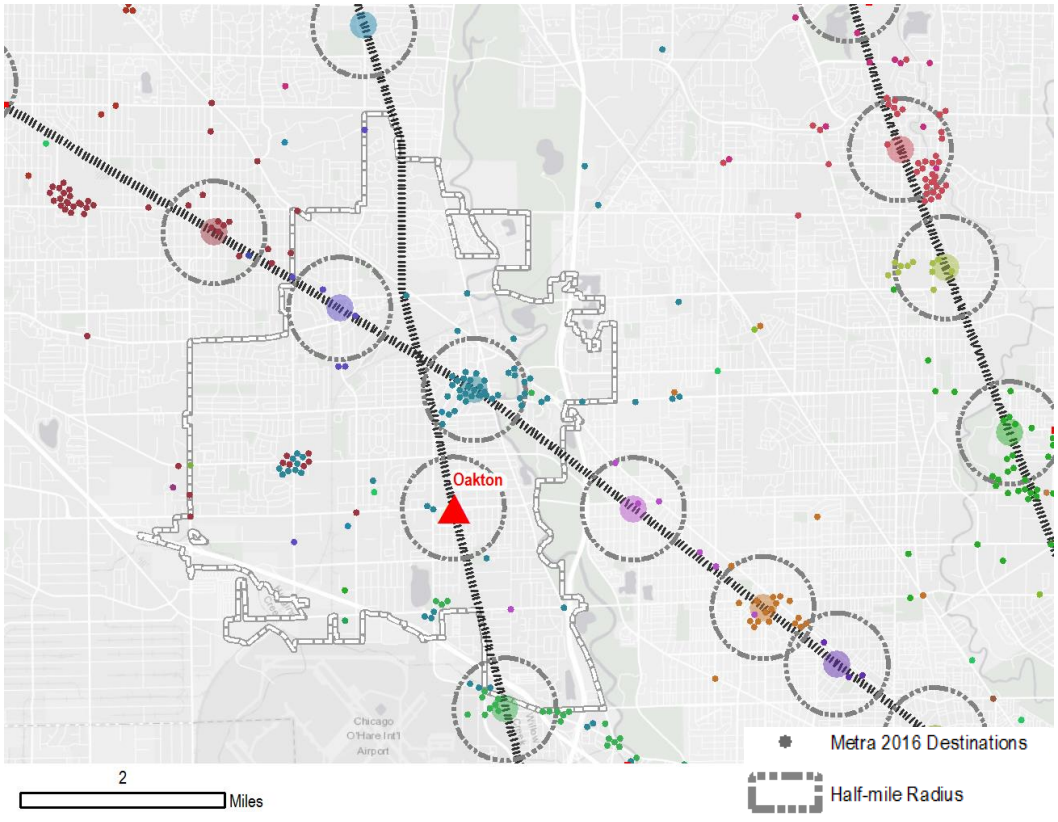
Table 3-3: Distance in Miles to Destination by Mode of Egress and Station Category

Mode	System	Residential Suburb Zone B-D	Non-Residential Suburb Zone B-D
Walk	0.5	0.3	0.6
Bicycle	1.2	1.0	1.1
Pace Bus	2.3	2.3	2.4
Private Shuttle	1.9	2.3	1.3

SOURCE: Metra Origin-Destination Survey (2016). Values rounded to nearest decimal.

The current distribution of Metra destinations is provided in Figure 3-16. According to 2016 data, fewer than 10 Metra riders were destined for locations within a half mile of the Oakton site, all of whom alighted at the UP-NW Des Plaines Station and either walked or were picked up. Expanding the radius to a mile, that figure increases to about 40, roughly half of whom alighted at Des Plaines (primarily walk/pick up mode of egress (MOE)) and 22% at O'Hare Transfer (primarily walk/bike MOE). However, it should be noted that this includes some riders who are within a half-mile of the UP-NW Des Plaines Station. The largest cluster of Metra destinations near the potential Des Plaines Oakton Street Station but outside the immediate station area of an existing station is at the intersection of Algonquin Road and Mount Prospect Road in Des Plaines. The only transit service at this location is Pace Route 230, and just 13% of 46 Metra riders (who alighted at the Mount Prospect or Des Plaines UP-NW Stations) take a Pace bus to reach this destination.

Figure 3-16: 2016 Metra Destinations

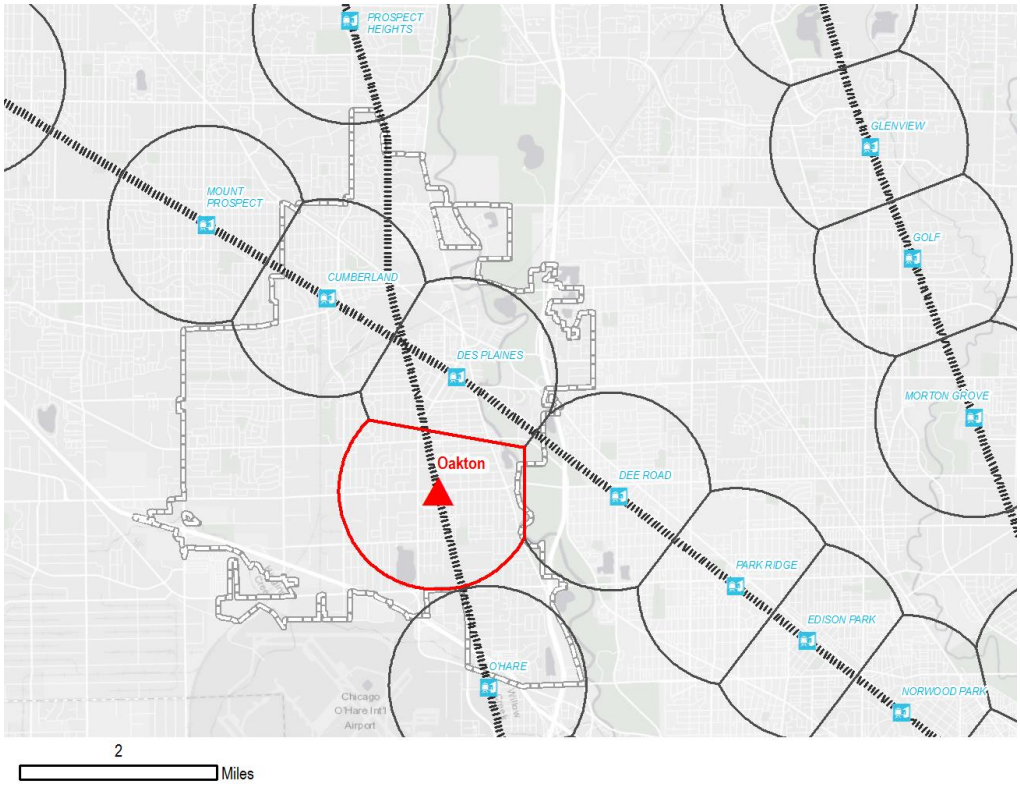


SOURCE: Metra Origin-Destination Survey (2016)

To better understand the potential for a destination market, LEHD data was analyzed to determine the home location of people working within a half mile of the potential Oakton station. Of these 2,011 workers, 8% (165) are living in the market shed of one of the existing NCS stations. Of the 165 workers living in the NCS market shed, about half live at least 10 miles away from the potential Oakton station and thus are more likely to consider using Metra service than shorter-distance home locations (where they might be more likely to drive, bus, bike, or walk).

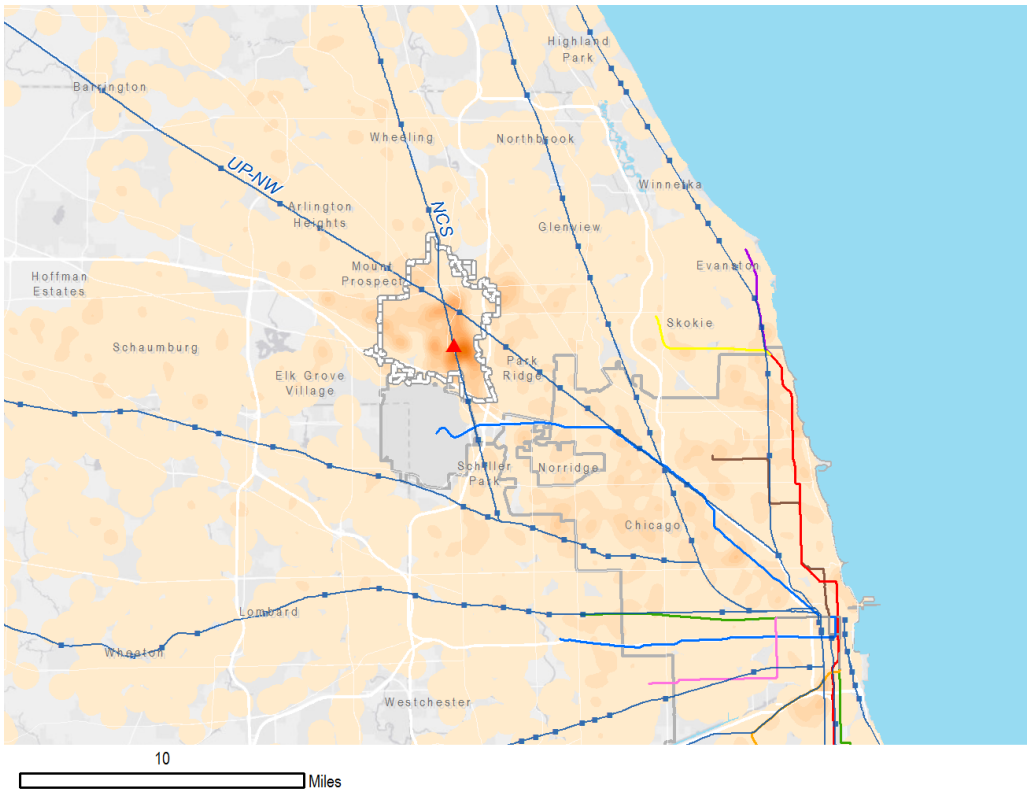
To aid in estimating the division of transit work commutes between adjacent Metra stations, the team developed destination sheds similar the methodology for the origin market sheds (i.e., nearest straight-line distance to station). These destination polygons were then restricted to the one-mile radius, as depicted in Figure 3-17. This one-mile distance was used to capture other egress modes than just walking—such as an average bike trip or short bus connection. Based on this analysis, there are approximately 650 residents accessible to an NCS station working in the Des Plaines Oakton Street Station destination shed, of whom nearly 400 live at least 10 miles from the station.

Figure 3-17: Non-Overlapping Destination Sheds with 2016 Metra Destinations



Finally, to better illustrate the spatial distribution of Oakton destination shed worker origins, Figure 3-18 shows the density of these home locations, using LEHD origin-destination data. There are nearly 7,200 total workers in the destination shed (as of 2015), 45% of whom are classified as high-wage workers (earning $3,333 or more each month). The greatest density is in Des Plaines itself.

Figure 3-18: Density of Home Location of Potential Oakton Station Destination Shed Workers



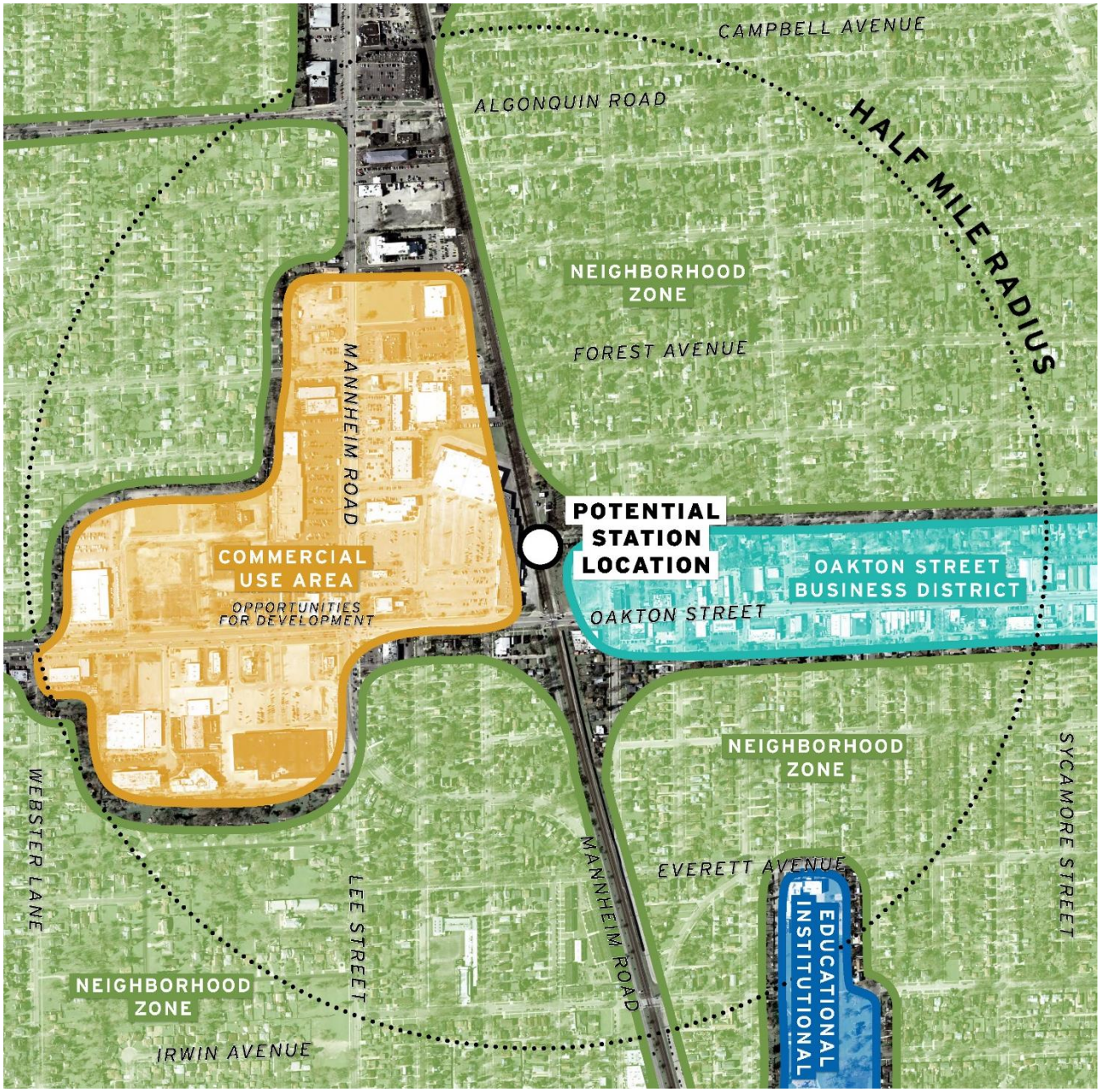
SOURCE: LEHD (2015)

3.7 Station Area Characteristics

The Oakton Station Area has been identified as including the area within a half-mile radius of the western terminus of Lincoln Avenue at the Canadian National Railway (CN) tracks, which is located one block (roughly 400 feet) north of Oakton Street. The station area sits entirely within the City of Des Plaines municipal boundaries and is generally aligned with Campbell Avenue to the north, Sycamore Street to the east, Irwin Avenue to the south, and Webster Lane to the west.

In addition to the North Central Service line, the two main organizing elements of the station area are Oakton Street and Mannheim Road, which are busy arterial corridors and important access routes within Des Plaines and the surrounding region. (See Figure 3-19.)

Figure 3-19: Station Area Context



3.7.1 Land Use

The overall land use and development character of the half-mile Oakton station area is consistent with a major arterial roadway crossing within a suburban context. Larger-scale commercial uses and suburban-styled commercial shopping centers are clustered around the primary intersection, and the surrounding areas are predominately single-family residential neighborhoods.

Table 3-4: Station Area Land Use Summary (half-mile)

Land Use (CMAP)	Area (acres)	% of Total
Single-Family Residential	240.5	47.9%
Multi-Family Residential	4.9	1.0%
Commercial	88.1	17.5%
Mixed-Use Commercial	3.4	0.7%
Hospitality/Entertainment	1.1	0.2%
Institutional	22.1	4.4%
Industrial	4.2	0.8%
Transportation/Utilities	13.7	2.7%
Common Open Space	1.5	0.3%
Vacant / Construction	8.6	1.7%
Right of Way	114.6	22.8%
Total	**502.7**	**100%**

SOURCE: CMAP

Residential

Residential is the most common land use category overall at just under 50% of the total station area, with detached, single-family homes encompassing the clear majority of this use. Based on an estimated total of 1,443 households within a half-mile radius of the proposed station,[1] the average density of all residential areas is roughly six units per acre. Residential neighborhoods to the south/southeast have a slightly denser character, with single-family and some two-unit buildings on smaller lots served by alleys—common in many inner-ring suburbs. North of Oakton Street, the residential areas have a more typical suburban development pattern, with larger lots and front-facing parking in garages and driveways.

Commercial

The station area has a substantial amount of commercial land use, with large shopping centers flanked by expansive surface parking lots representing the largest proportion of commercial land area. Smaller one- to two-story commercial uses predominate along the primary corridors of Oakton Street and Mannheim Road, with the western segment of Oakton Street and northern segment of Mannheim Road featuring a more suburban commercial character with free-standing, auto-oriented uses surrounded by parking. East of the CN tracks, however, a more traditional mixed-use commercial character exists along Oakton Street with a finer-grain development pattern consisting of one- to two-story buildings that have little to no setback from the right of way.

Industrial

There are only a handful of properties identified as industrial use within the station area, and these uses are lighter industrial in nature and tend to include some commercial components or features—for example, the Boston Fish Market processing facility on Forest Avenue includes both indoor and outdoor dining space. Notably, the eastern portion of Oakton also has some commercial uses that are generally more industrial in nature, including auto repair shops, rental centers, and a landscaping company.

Institutional

Institutional uses are fairly limited within the station area and include a handful of churches, South Elementary School to the southeast, Fire Station 62 at 1313 East Oakton Street (south side of Oakton, west of CN), and a US Post Office Center to the west. Though not located within the station area,

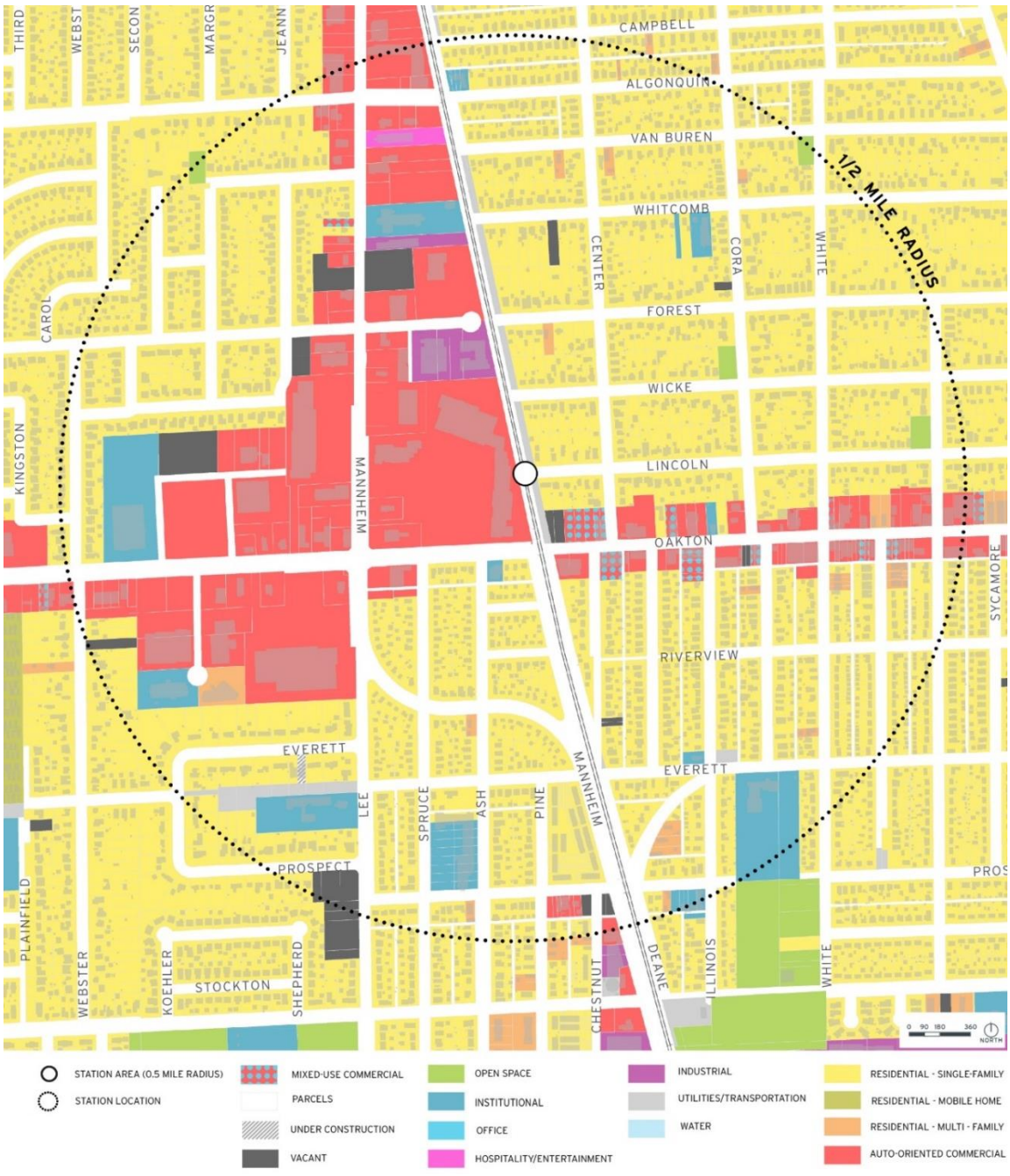
[1] Source: Esri Business Analyst Online

Maine West High School and a few elementary schools lie just west of the station area. Initial conversations with area residents indicate that high school students traveling to or from school represent a considerable amount of foot traffic within the area.

Open Space

Few parks or open spaces exist in the station area, though there are several large recreational areas and opportunities relatively close by. The Cook County Forest Preserve has a significant presence roughly one mile east of the project station site, which includes Algonquin Woods, Campground Woods, and the Des Plaines River Trail. Lake Opeka, a large park and recreation area within Des Plaines, lies just over a half mile to the southwest and may represent another popular destination for station area residents and visitors.

Figure 3-20: Station Area Land Use Map



3.7.2 Zoning

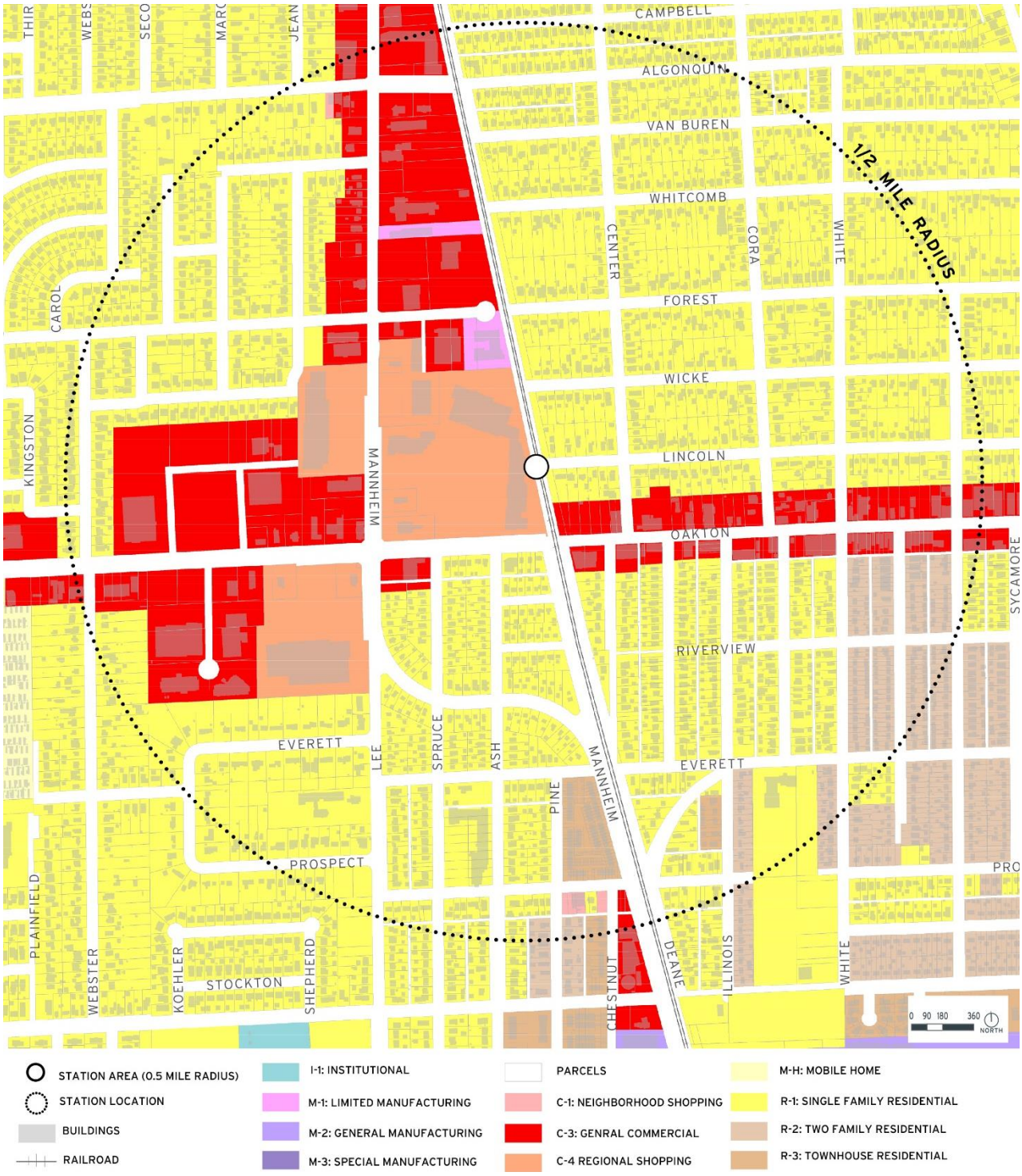
Zoning within the proposed station area is generally split between R-1 Single-Family Residential districts and a combination of C-3 and C-4 commercial zoning districts. Two-Family Residential zoning (R-2) and Townhouse Residential (R-3) are also present in the south portion of the station area, as well as a very limited amount of Neighborhood Shopping (C-1) and low-intensity Limited Manufacturing (M-2) zoning.

As indicated in Figure 3-21, the C-4 Regional Shopping district occupies a considerable amount of land—roughly 38 acres—but is comprised of only 10 properties in total. These properties are clustered around the Oakton and Mannheim/Lee intersection and include The Oaks Shopping Center located to the immediate west of the proposed station. The larger proportional size of these properties is consistent with the intent and related development standards of the C-4 zoning district, which is expressly intended to "accommodate shopping centers" and related outlot development (*City of Des Plaines Zoning Ordinance*, last updated January 7, 2019). While a broad range of commercial uses are permitted in C-4 districts, notably, residential development in any form is not.

The other commercial district zoning with a large presence in the station area is C-3 General Commercial, which is intended to support a very wide range of commercial uses and development types. Though C-3 districts do not generally permit residential use, a specific allowance is made for upper-story residential use along Oakton Street (one unit per property) to the east of the CN tracks. In addition, the C-3 standards allow for Mixed-Use Planned Developments as a conditional use, which is intended to encourage significant increases in residential density if basic commercial use thresholds are met.

Both R-1 and R-2 zoning districts, which make up a considerable portion of the station area, are intended to maintain low-density residential neighborhoods and do not permit any development types beyond detached single- or two-family dwellings. While much of the residentially zoned land within the station area is already built out as mature neighborhoods, any future efforts to increase density in the area—for example through infill development or redevelopment—will be further limited by the R-1/R-2 zoning standards. As a result, future efforts to promote transit-oriented development within the station area will likely occur as mixed-use planned developments on commercially zoned land.

Figure 3-21. Station Area Zoning Map



3.7.3 Infrastructure and Utilities

The station area is served by publicly owned and controlled underground water and storm sewer lines that are located within the rights-of-way of most of the area's public streets. This includes several large-diameter lines that also run adjacent to and under the CN Railway tracks near the proposed station location between Oakton Street and Wicke Avenue.

Along Oakton Street there are a series of both storm and combined gravity main sewers, including a 54" diameter storm sewer that runs west from the CN tracks through the far west end of the station area. At the CN tracks, the 54" storm sewer turns north, increases in size to 60" in diameter and proceeds to run along the east edge of The Oaks Shopping Center property before turning east and heading down Lincoln Avenue. A secondary 18" storm sewer line also runs the along the east edge of The Oaks Shopping Center north of Lincoln Avenue. East of the CN tracks, there are only combined sewer mains along Oakton Street, with the largest having a 24" diameter.

Water mains also run beneath Oakton Street, including a 12" diameter line adjacent to the southern edge of The Oaks Shopping Center property, which then crosses under the CN Railway tracks before proceeding east along Oakton Street. A 24" diameter water main also exists within the ComEd utility corridor, immediately east of the CN rail line, running parallel to the tracks. Within the immediate proximity of the proposed station—generally between Oakton and Forest—ComEd owns or controls properties to the immediate east of the CN railway line, where it operates overhead power lines.

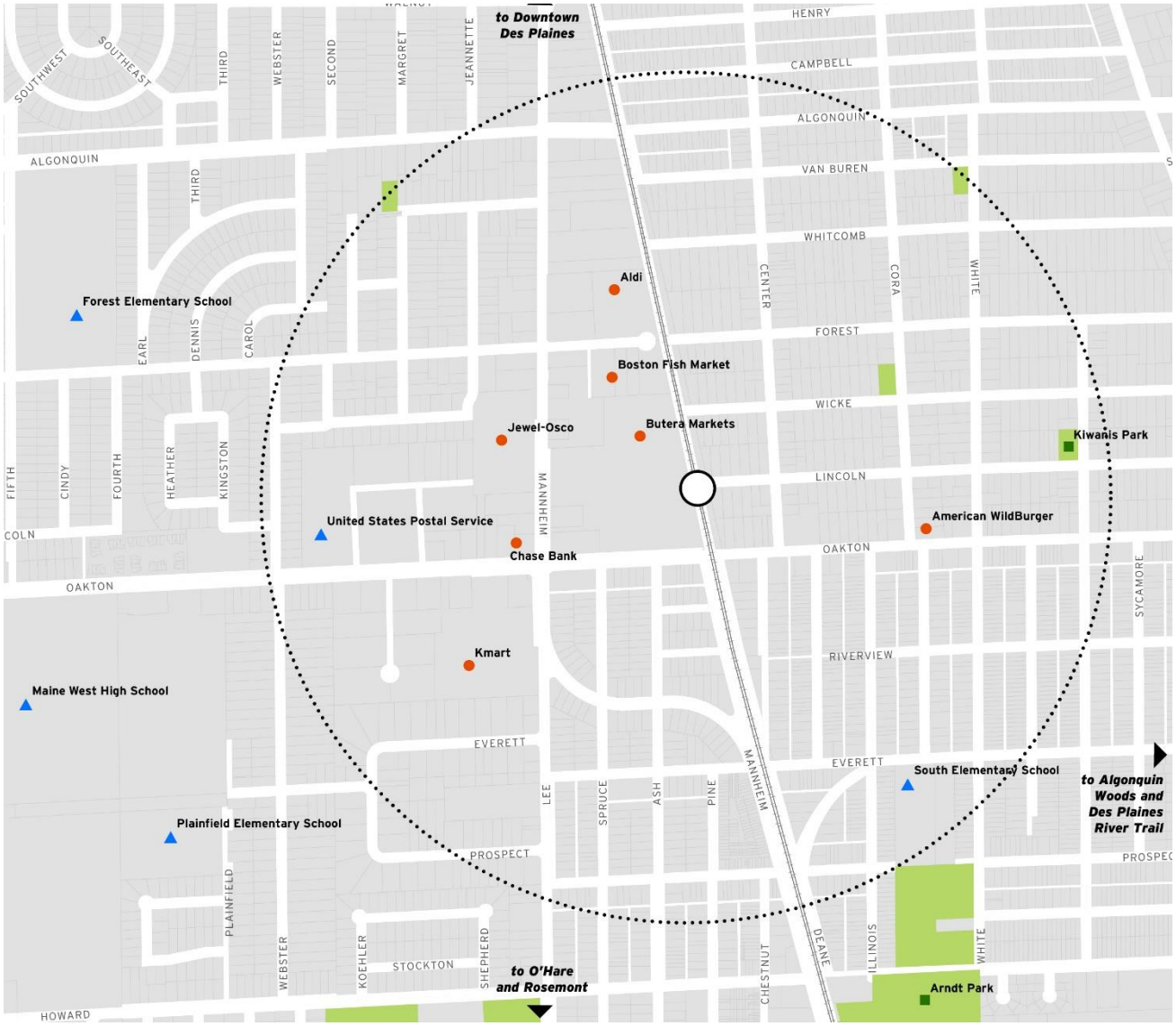
Additional information regarding other essential utilities within the Study Area—including power, gas, and telecommunications—were not available to the project team at the time of this writing. Formal surveys of existing utilities and infrastructure, including a more detailed analysis of the exact location and condition of utilities identified above are strongly recommended before any formal implementation efforts proceed in the future.

3.7.4 Local Points of Interest

Within the station area, the primary points of interest consist of a number of retail anchors and popular dining establishments. These are well-known destinations for convenience shopping and provide a local employment base. Being located roughly one mile south of Downtown Des Plaines, the businesses located along Oakton Street were also noted by City Staff and other community stakeholders as playing an important supporting role as the City's "Main Street off of Main Street."

South Elementary School is the only local public educational institution located within the station area, but there are several schools and religious institutions nearby noted by area residents and stakeholders as being important neighborhood hubs and foot traffic generators. Several important recreation destinations also exist within a mile or less of the proposed station, including Lake Opeka to the south and Cook County Forest Preserve land and the Des Plaines River Trail to the east, as noted above. (See Figure 3-22.)

Figure 3-22: Local Points of Interest Map



Though not located within the immediate environs of the station area, proximity to O'Hare Airport and the entertainment uses and transportation network around Rosemont to the south are important considerations when evaluating potential demand for future development within the station area.

3.7.5 Public Spaces

Public open space within the station area is limited to a handful of small neighborhood parks and the South Elementary School schoolyard. Other public/semi-public spaces—such as plazas, wide sidewalks, and non-vehicular rights-of-way—are also very limited within the station area at this time. While the provision of any substantial parks or green spaces is unlikely to occur in the future without significant changes to existing development, future redevelopment of currently under-utilized or inefficient commercial areas could provide new opportunities for public space. Should the proposed train station be implemented, any associated redevelopment plans should integrate adequate public or semi-public spaces for gathering and outdoor activities, such as dining and occasional community events.

As has been noted in the above sections, several regional-scale public open spaces do exist within relatively close proximity to the proposed station. To take advantage of these opportunities (for the benefit of both local residents and potential Metra riders alike), improved bike and pedestrian connections and wayfinding elements should be considered where appropriate.

3.7.6 Transportation Access

The Des Plaines Oakton station area is dominated by the intersection of two regionally important arterial corridors with high average daily traffic (ADT) counts. Existing land uses and development patterns are directly correlated to the intersection of Oakton Street and Mannheim Road and reflect a post-war suburban character that favors automotive convenience over pedestrian activity and walkability. However, the possible addition of both a new Metra NCS station and enhanced bus/arterial rapid transit service (i.e., the Pace Pulse Dempster line) within immediate proximity of one another could offer significant potential for transformation of the station area.

3.7.6.1 Roadways and Sidewalks

Within the station area, Mannheim Road (US Route 12 / 45, and also called Lee Street north of Oakton Street) is under Illinois Department of Transportation (IDOT) jurisdiction within the project area, and is designated as a State Maintained Truck route (Class II). North of Oakton Street, the ADT on Mannheim Road is 21,200 vehicles, and south of Oakton 19,700 vehicles (source: IDOT: https://www.gettingaroundillinois.com/gai.htm?mt=aadt).

West of Mannheim, Oakton Street is also under IDOT jurisdiction, where it has an ADT of 25,500 vehicles. East of Mannheim, however, Oakton falls under municipal jurisdiction, and has an ADT of 20,200 vehicles. All other roadways within the station area are under municipal jurisdiction.

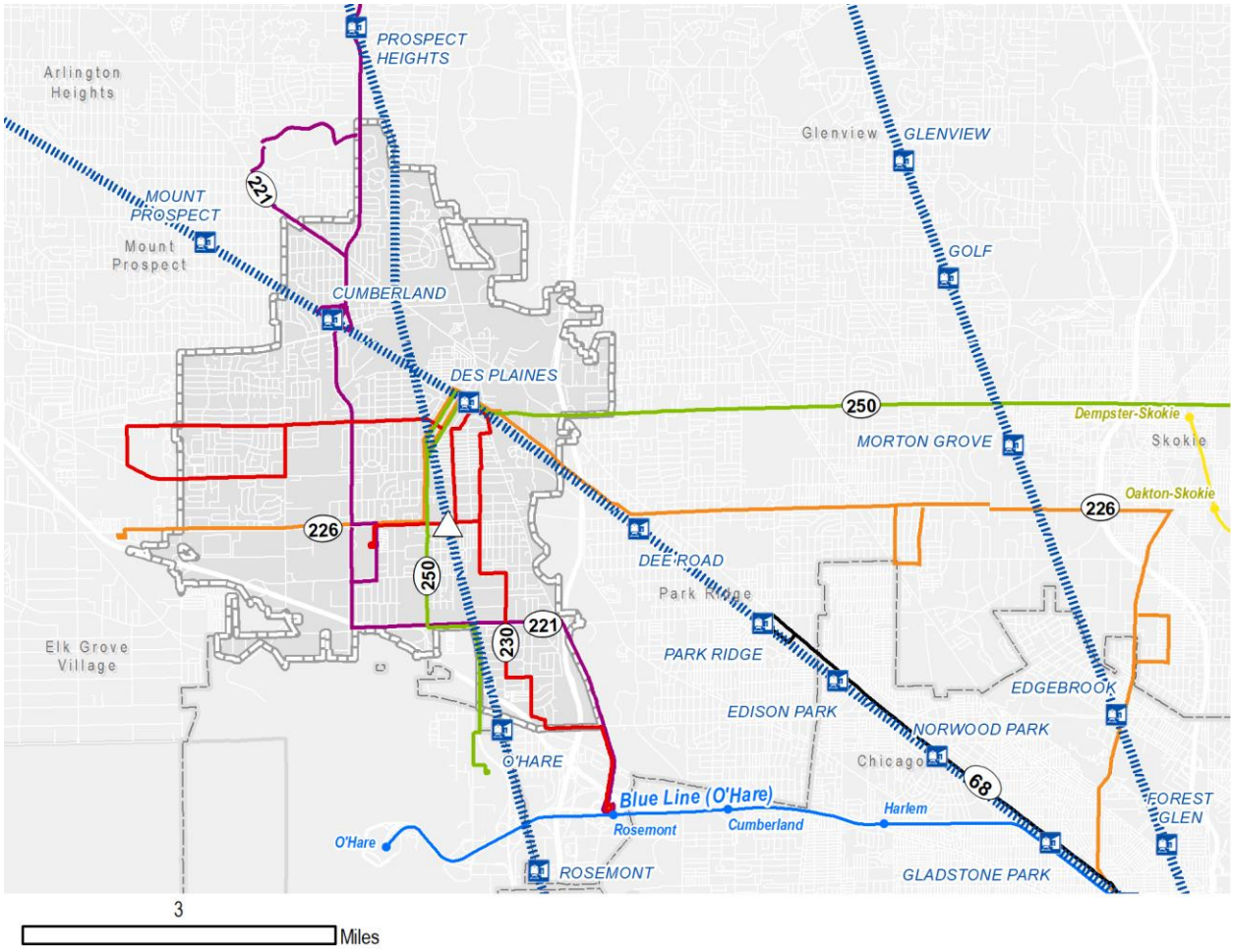
While the prevailing character of the station area is oriented towards automotive travel and convenience, road and sidewalk conditions are generally in adequate condition. Aside from a few notable exceptions—for example the far northern and southern segments of Mannheim, and Oakton Street east of the CN tracks—sidewalks exist and are adequately buffered from vehicular travel ways. Initial discussions with area residents and business owners revealed that the eastern segment of Oakton Street was particularly challenging due to high traffic counts and more constrained right-of-way distances. The on-street parallel parking that exists along this portion of the corridor was perceived as a safety issue and a desire to widen the existing roadway was noted by several local stakeholders. Should implementation of a new Metra station proceed, this issue and area of focus will likely require further study to determine both the nature and intent of any future improvements.

North-south movement is relatively unimpeded to, from, and within the station area, but opportunities to travel east-west across the CN railway tracks are limited to only three locations: Algonquin Road, Oakton Street, and Prospect Avenue. This already presents a significant constraint to area connectivity and the introduction of a new Metra station could further impact congestion and potentially public safety if not appropriately addressed in the future. The City's forthcoming Comprehensive Plan identifies this concern and recommends at least one additional east-west connection be established, although implementation may be difficult due to both physical and jurisdictional constraints.

3.7.6.2 Transit Connectivity

Within a short distance of the proposed station location are four Pace bus routes: 221 Wolf Road, 226 Oakton Street, 230 South Des Plaines, and 250 Dempster Street. At a farther distance are the CTA's Blue Line and Bus Route 68 Northwest Highway. Figure 3-23 shows the routing of these transit services.

Figure 3-23: Nearby Transit to the Proposed NCS Oakton Station



Transit routes proximate to the proposed Oakton station are summarized below (source: Pace and CTA websites).

- **Pace Route 221 – Wolf Road |** Provides weekday service between north Prospect Heights, Kensington Business Center, western Des Plaines, Rivers Casino and the Rosemont CTA Blue Line Station. Midday service operates south of the Cumberland Metra Station. Peak period headways are roughly every 15-30 minutes. Nearest stop is about one mile from the Oakton station.
- **Pace Route 226 Oakton Street |** Provides weekday service between the Jefferson Park CTA Blue Line / Metra Station and Oakton and Hamilton in southern Mount Prospect via the UP-NW Des Plaines Metra Station. Stops also include Edgebrook Metra Station, Village Crossing, Oakton Community College/Prairie Center, Niles West High School, Oak Mill Mall and Maine West High School. Peak period headways are infrequent west of Niles, including Des Plaines—roughly one hour.

- **Pace Route 230 South Des Plaines |** Provides weekday service between the Rosemont CTA Blue Line station and the Des Plaines Metra Station. serving south Des Plaines. Rush hour extension to the western part of Des Plaines. Stops include Rivers Casino, Maine West High School, Prairie Lakes Park Community Center, Salvation Army HQ and Elmdale Apartments. Certain rush hour trips serve the O'Hare Lakes Office Complex. Peak period headways are roughly every half hour.
- **Pace Route 250 Dempster Street |** Provides daily service from downtown Evanston to the Des Plaines Metra station via Dempster and then south to the O'Hare Kiss-n-Fly Airport Transit System (ATS) Station. Major generators served include the Davis Street CTA Station (Purple Line), the Skokie Swift CTA Station (Yellow Line), Notre Dame and Maine East High Schools, and Lutheran General Hospital. Peak period headways are roughly every 15 minutes. This route is also part of Pace's planned Pulse rapid transit network. These services will involve enhanced express bus service using the latest signal technology and streamlined route design. The Pulse Dempster Line is anticipated to be in-service in 2020 and will include a station at Lee/Mannheim and Oakton.
- **CTA Blue Line "L" |** Rosemont Station is 3.2 miles southeast from the potential Oakton station, providing connections to downtown and the larger CTA network.
- **CTA Bus Route 68 Northwest Highway** | Located 3.2 miles away, service runs roughly every 20 minutes, connecting the Metra UP-NW Park Ridge Station with Jefferson Park Terminal, parallel to Metra UP-NW along Northwest Highway.

Current Metra service is provided at nearby UP-NW and NCS stations. Relevant data on three UP-NW and two NCS stations are provided on Table 3-5. The median of all non-downtown stations on the Metra system is also shown. It can be observed that level of service on the NCS is lower than for the UP-NW and for the median Metra station.

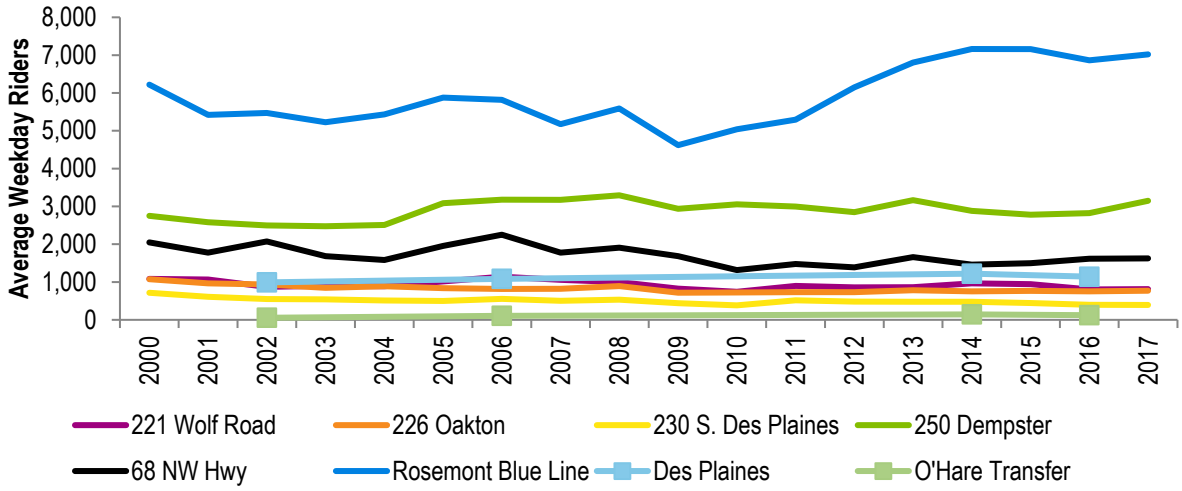
The boarding history across nearby transit service is provided in Figure 3-24. Most bus and rail ridership has held steady over time, but ridership at the Rosemont Blue Line station has risen dramatically since 2009, after a declining trend from 2000 until that point. It is likely that the growth in ridership is due in part to the large-scale commercial development that has taken place in the area in recent years (such as the Fashion Outlets of Chicago (Rosemont), which opened in 2013, and various entertainment venues located within the Village of Rosemont).

Table 3-5: Proposed NCS Des Plaines Station – Comparative Statistics of Nearby Stations

	Prospect Hts.	O'Hare Transfer	Cumber-land	Des Plaines	Dee Road	Metra Median Station*
Metra Line	NCS	NCS	UP-NW	UP-NW	UP-NW	--
Distance to Downtown (miles)	24.0	17.1	18.6	17.1	15.0	17.4
Metra Fare Zone	E	D	D	D	C	
Timetable Effective Date	5-Feb-18	5-Feb-18	29-Jan-12	29-Jan-12	29-Jan-12	--
Inbound Trains per Weekday						
AM Peak	5	5	9	12	8	8
Midday	2	2	6	6	6	6
PM Peak (reverse)	2	1	3	4	4	3
Evening	0	0	3	5	3	4
Outbound Trains per Weekday						
AM Peak (reverse)	2	2	5	5	5	4
Midday	2	2	5	6	6	6
PM Peak	4	4	7	9	6	7
Evening	2	2	6	6	6	6
Total Trains per Weekday	19	18	44	53	44	44
Travel Time to/from Downtown						
Minimum (in mins)	42	30	27	24	27	29
Maximum (in mins)	52	40	44	42	37	46
Parking Capacity (spaces)	328	0	253	317	172	312
% Parking Capacity Use (fall 2015)	51%	--	70%	79%	97%	78%
Daily Average Parking Fee	$1.75	--	$1.50	$1.50	$1.50	$1.50
Weekday Boardings (2016)	266	123	455	1,142	515	428

*SOURCE: Metra; *Median of all non-downtown stations.*

Figure 3-24: Weekday Boarding History (Nearby Transit)



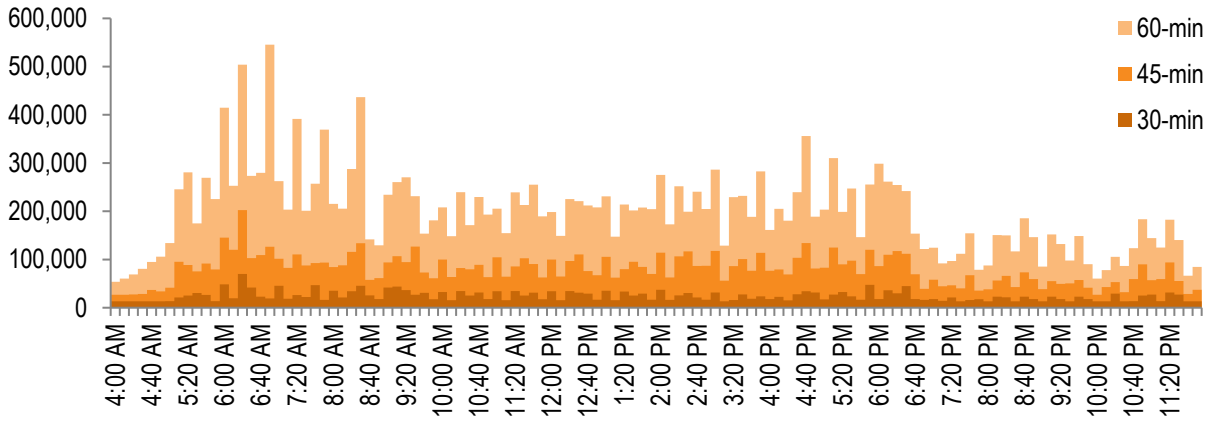
SOURCE: Pace and CTA data: RTAMS, average September weekday riders, 2000-2017. Metra (2017).

Schedule-Based Connectivity Analysis

In order to better understand how the existing transit network serves persons living near the potential Oakton station, General Transit Feed Specification (GTFS) data for Metra, CTA, and Pace were gathered in November 2018 and a network analysis was performed to determine how many employment destinations could be reached using only currently operating walk-access transit service from the half-mile Oakton station area, including the wait times needed to transfer between routes.

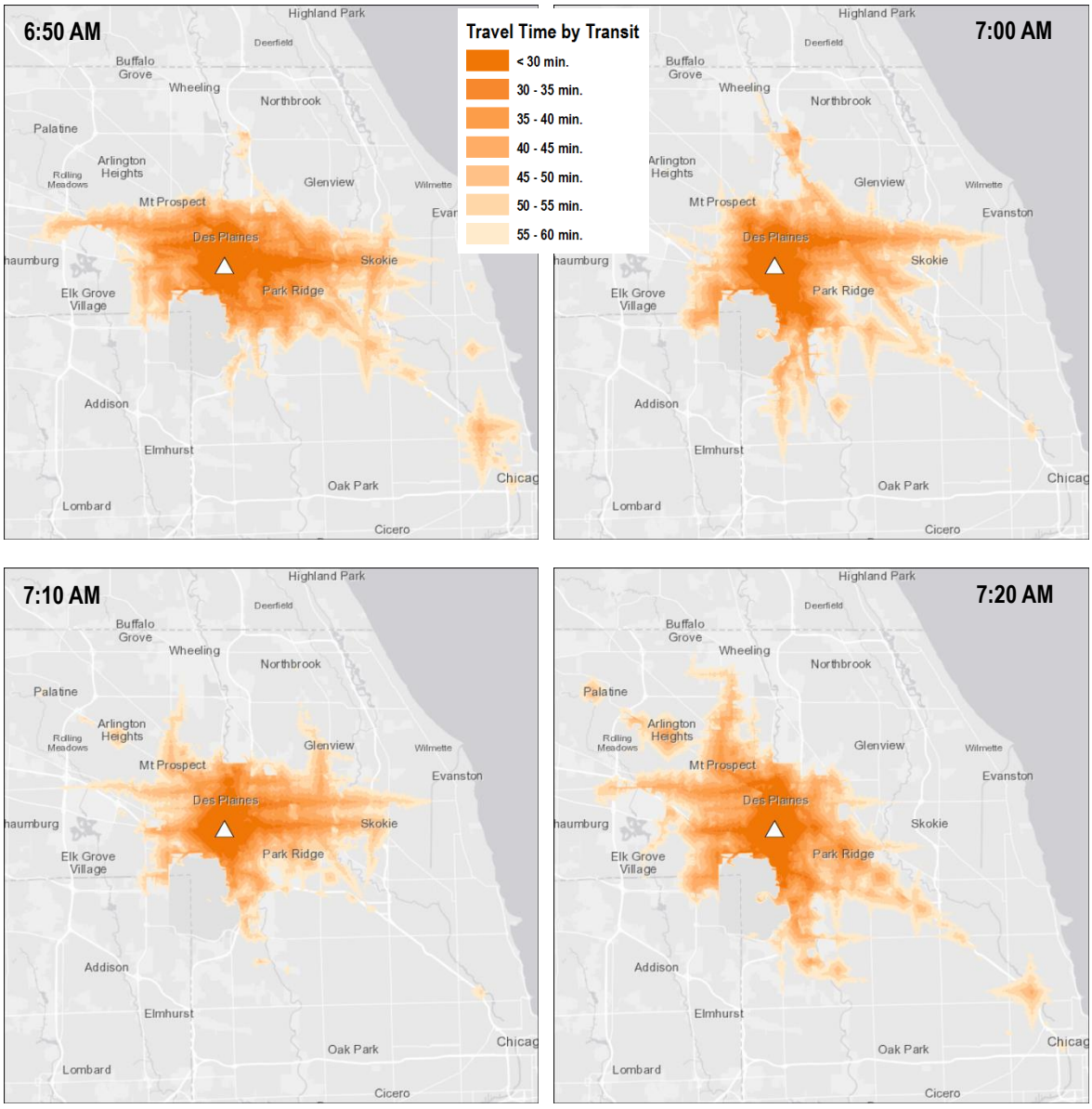
As indicated by periodic spikes in job accessibility during the AM peak in Figure 3-25, the opportunity to take advantage of Metra service at nearby stations on the NCS and UP-NW dramatically increases the number of jobs accessible. Currently, for non-vehicular access commuters, Metra stations can only be reached from the Oakton site by taking connecting bus service, which, due to timing, distance, and road congestion-related constraints, limits access to jobs in central Chicago via transit. The changing landscape of transit accessibility over the course of an hour (in 10-minute departure time intervals) is also illustrated spatially in the maps in Figure 3-26.

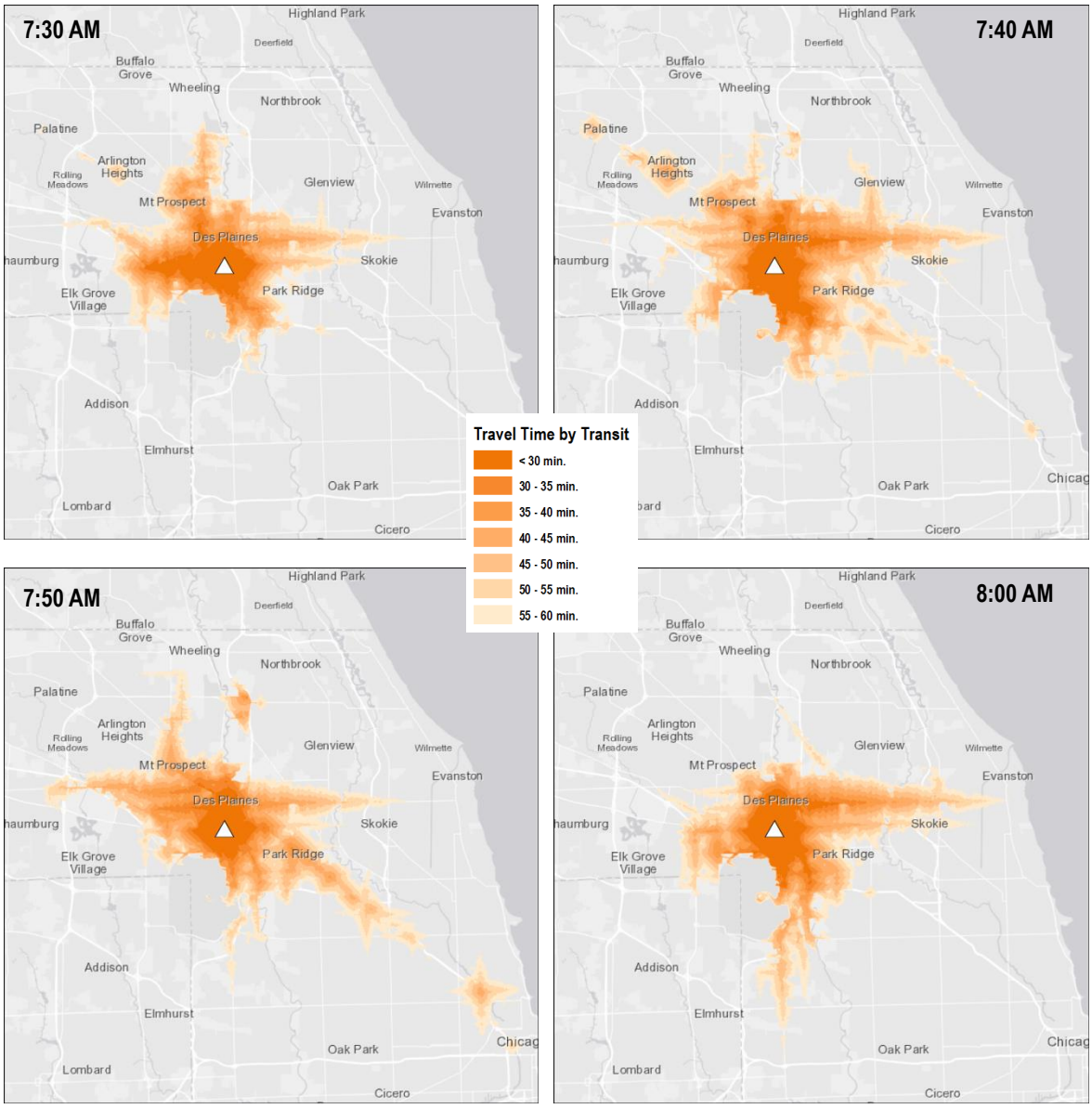
Figure 3-25: 2015 Jobs Accessible via Transit from Oakton Site



Data source: Metra, CTA, Pace GTFS data (November 2018)

Figure 3-26: 60-minute Transit Service Areas from Oakton Site by Departure Time





Data source: Metra, CTA, Pace GTFS data (November 2018)

Finally, for the purposes of further analyzing job accessibility by transit, the network was evaluated to determine the number of jobs accessible via a 60-minute or shorter transit trip for departure times ranging between 7:00 AM and 7:59 AM on a weekday morning. This analysis was carried out for the Oakton site as well as nearby existing Metra stations.

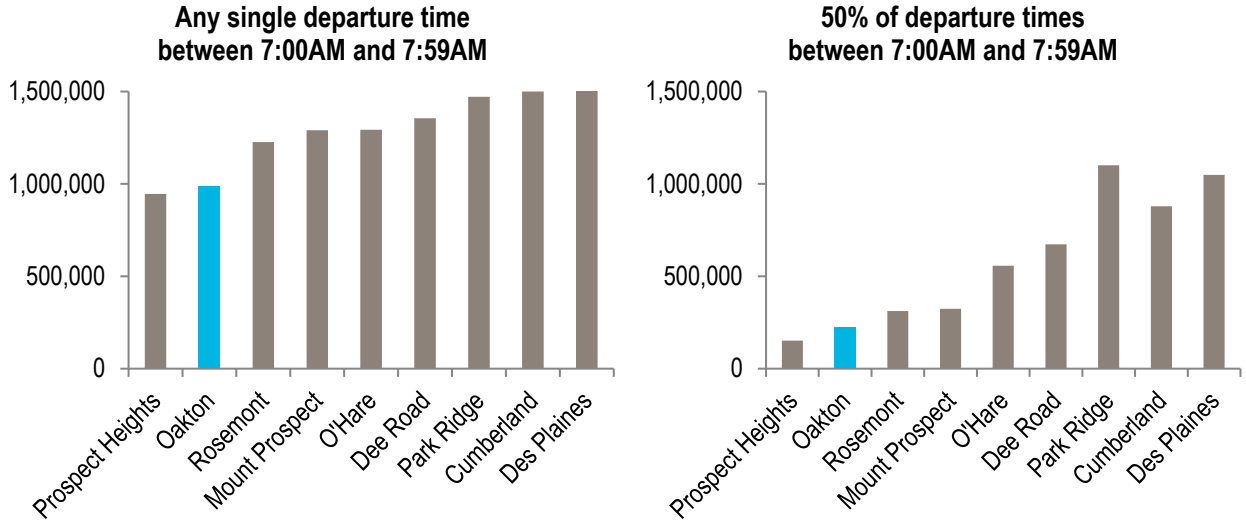
As shown in Figure 3-27, Oakton is at the lower end of the spectrum, with fewer than 1 million jobs accessible by transit (assuming at least one possible departure time between 7:00 AM and 7:59 AM), which is about a third less than at nearby Des Plaines and Park Ridge stations, and a quarter less than at the O'Hare Transfer station.

Assuming that people need more flexibility in their schedules and wish to be able to reach their workplace within an hour for at least half of the possible departure times, the figures drop dramatically for the Oakton site without Metra service, reflecting the significant impact of Metra service (relatively

infrequent but time-efficient). Only 225,000 jobs are accessible under these conditions, compared to over a million at Park Ridge and Des Plaines Stations, and 555,000 at O'Hare Transfer.

These results highlight how dependent people in the area around the Oakton site are on making transit connections to nearby Metra stations to reach jobs. Connections aren't frequent enough to maintain reliable transportation to workplaces farther afield, should an individual happen to miss the connecting bus. For example, Oakton loses 72% of its 60-minute job accessibility under the 50% departure time parameters, whereas Des Plaines and Park Ridge lose about 25-30%.

Figure 3-27: Jobs Accessible via 60-minute transit/pedestrian trip (Nearby Stations)



3.7.6.3 Non-motorized Access

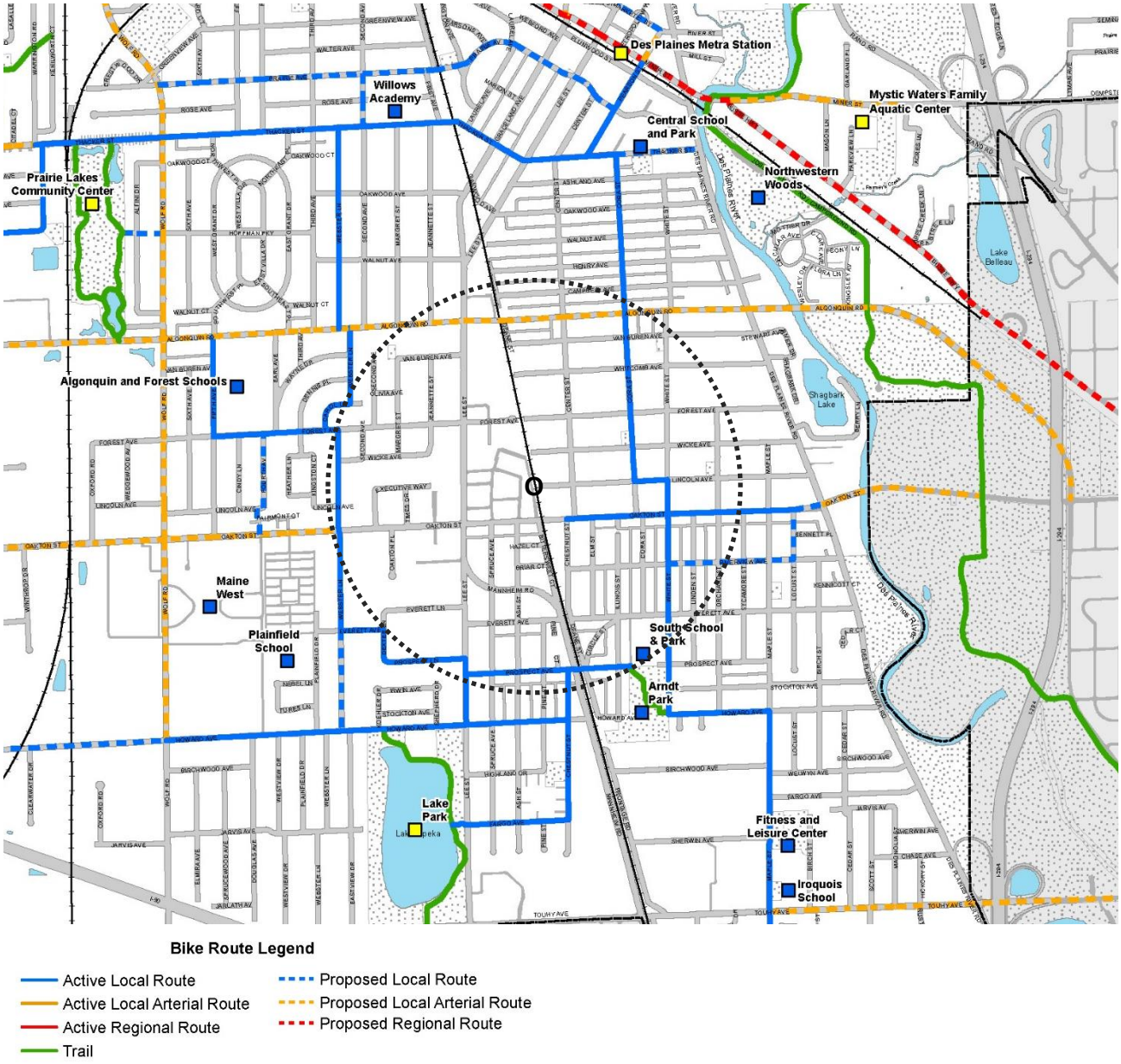
Due to the limited opportunities for east-west movement and a general lack of amenities or infrastructure for pedestrians and bicyclists (aside from the generally complete sidewalk network), non-motorized access within the station area is particularly constrained. Efforts to improve the community's bicycle infrastructure have been taken in recent years though, including the adoption of a citywide Complete Streets Policy in 2012, and ongoing route and trail enhancements. The City's Proposed Bike Network Map, last updated in 2016, also provides an indication of future plans for non-motorized access within the station area (Figure 3-28).

Conversations with local stakeholders, including representatives of the community's bike coalition, indicated that bicycle use is common in the station area, but generally occurs along residential side streets and avoids major arterials. This observation is supported by the Bike Network Map's designation of Cora Street/White Street as an Active Local Route, which represents the station area's preferred north-south bike corridor.

As noted above, east-west movement across the CN Railway tracks is severely constrained and is likely to remain that way in the future with only two enhanced track crossings. The proposed bike network indicates that Algonquin Road has been identified as a future east-west local arterial route, while Prospect Road is an existing local route on the far south end. East of the tracks, Oakton Street is also recommended as an Active Local Route for bikes up until Des Plaines River Road, where it becomes a Proposed Arterial Route as it crosses over the Des Plaines River before connecting to the

Des Plaines River Trail. However, at the time of this writing, few bicycle-related enhancements along Oakton have been observed. Riverview Avenue, located one block south of Oakton Street, has also been proposed as a local bicycle route, though only for a limited distance between White and Locust Streets. All three-primary east-west routes are intended to connect to the Des Plaines River Trail roughly one mile to the east of the proposed station, and establishing and enhancing this connection should remain an important goal moving forward.

Figure 3-28: City of Des Plaines Proposed Bike Network Map (2016)



3.7.6.4 Safety

A prevalence of vehicular crashes and pedestrian/vehicle conflicts was noted as a significant concern during discussions with local stakeholders. The station area is generally oriented toward automotive convenience, but a significant amount of pedestrian activity also exists—notably from students walking or biking to area schools. One of the larger issues within the station area affecting both pedestrians and bicyclists is the general lack of appropriately marked or signed pedestrian crossings, which is especially relevant for crossings across the two main arterials. The arterial crossings that do exist are relatively far apart and offer little in the way of markings or safety enhancements beyond standard crosswalk striping. The result is a decreased level of pedestrian safety and comfort, which will need to be addressed if increased pedestrian activity and a heightened emphasis on walkability is desired.

The lack of east-west crossings of the CN Railway tracks is another potential safety concern that may need to be addressed as part of any future Metra station implementation efforts. On-site observations by project team members in fall 2018 indicated that informal track crossings by local neighborhood residents may be common. Evidence of track crossings was especially evident near Forest Avenue, which is a prominent east-west pedestrian travel route for area residents.

Another possible safety concern is that a new station at Oakton would incrementally increase gate downtown at the Oakton railroad crossing. This has the potential to impact response time for calls east of the CN tracks for Fire Station 62 emergency vehicles.

3.7.7 Environmental Screening

Storm water retention within the station area is limited to a handful of locations along the west side of the tracks to the north and south of Forest Avenue. However, these are generally intended to serve existing development. A review of municipal infrastructure data indicates that the vast majority of storm water catchment and conveyance occurs through sub-surface infrastructure—generally within or along public right of ways. The provision of additional infrastructure for catchment will likely be part of any future redevelopment efforts.

While some degree of separation or buffering between the tracks and adjacent residential and commercial land uses does exist within the station area, concerns about noise and pollution have been noted by local residents. These impacts and concerns are likely to remain whether or not a new Metra station is implemented, due to the regular use of the tracks for freight and passenger service.

3.8 Considerations

In addition to the existing conditions analysis outlined above, it is important to consider several other topics to better understand and assess the potential Oakton Station market. These include:

1. Findings from previously completed and ongoing planning efforts
2. Historical and projected socioeconomic growth
3. Land acquisition consideration
4. Potential land use conflicts

3.8.1 Prior Planning Studies

A significant amount of planning and analysis relevant to the potential station site has been completed in recent years. Findings relevant to this Feasibility Study are summarized below.

Oakton Street/Elmhurst Road Corridor Study, 2009 | This Plan included four separate districts along Oakton Street and Elmhurst Road, two of which are relevant to the potential Oakton Street Station site: the Oakton Retail District to the west of the CN tracks, and the Oakton Mixed-use District to the east. The Vision statements for the two districts are as follows:

- **Oakton Retail District** is a mix of large format retail and mixed-use development providing a regional destination…Its attractive shopping environment creates a unique sense of place within Des Plaines (see Figure 2-13).
- **Oakton Mixed-use District** is a unique place…Its traditional commercial development pattern will be the foundation for improvements that help create a strong pedestrian environment and focal point for the community. New activities and destinations attract residents and visitors…and re-establish it as one of the city's great places to live, work, and play (see Figure 2-14).

The Oakton Retail District redevelopment plan includes features such as a more pedestrian-oriented environment (e.g., reduced setbacks for commercial properties along Oakton Street and Lee Street) and higher-density residential along Executive Way, while still retaining large-footprint commercial like the Oaks Shopping Center.

The Oakton Mixed-use District redevelopment plan includes a destination commercial and open space, including a public green with market arcade and commercial redevelopment on the north side of Oakton between White and Orchard Streets. This is one of the two targeted mixed-use redevelopment areas, along with the parcel immediate to the east of the potential NCS infill station site. The plan emphasizes parking infill, access and management to ensure that customers to corridor businesses—as well as residents along the corridor—can reach their destinations. It also includes streetscaping and gateway improvements to aid in attracting customers and new businesses. As noted in Section 2.5, Initial Station Screening, the recommendations for retail in the plan would need to be reexamined based on today's market realities and the integration of a new train station. It is believed that updated plans should place a higher emphasis on multiple-family residential and transit-oriented development.

Cumberland Station Area TOD Plan, 2010 | Intended to guide and spur TOD near the UP-NW Cumberland Station, this Plan focused on revitalizing the commercial area near the station, particularly within a quarter mile. The study found a need for significant improvements in vehicular and pedestrian circulation for safety and improved flow, as well as a need to ensure that future developments are less auto-oriented in nature. Analysis identified potential to support additional restaurants, specialty retail, and professional dry-cleaning. Design guidelines include features like improved pedestrian facilities, façade and streetscaping/landscaping improvements, parking reconfiguration, an upgraded stationhouse (completed spring 2019), and targeted private sector redevelopment, among others. A representation of the long-term plan is provided in Figure 3-29. The Cumberland Station TOD Plan is representative of the City's long-standing commitment to aligning land use policies and dedicating resources to better support transit as an attractive and convenient travel mode.

Figure 3-29: Cumberland Station Long-Range Master Plan

Source: Cumberland Station Area TOD Plan (2011)

Active Transportation Plan, 2011 | This plan makes note of opportunities to improve non-motorized access to Metra Stations to improve safety and accessibility. Recommendations include installing bike racks or covered bike parking near stations, installing a mid-block crossing on Northwest Highway to provide a refuge for pedestrians trying to reach the Metra station or Pace bus stop, or making other infrastructure improvements (e.g., traffic signal, underpass) to ensure that the impediments to accessing transit are minimized. These same considerations should hold for the potential NCS infill station in Des Plaines. This plan also makes note of a potential future Metra Station near Oakton Street, as well as potential stations along the proposed Metra STAR Line (not under active consideration by Metra at this time).

City of Des Plaines Economic Development Initiative, 2014 | This study examined five primary geographic priority areas across Des Plaines, in addition to ancillary and other sites, to find and evaluate opportunities for economic development. One of the priority areas was the Oakton Street Corridor.

A citywide market overview determined that the area has strong demographic support, despite the lower median income than other nearby Chicagoland suburbs. The housing market is relatively affordable and thus attractive to first-time home buyers, and there is a scarcity of inventory, yet limited appetite for new single-family development. The study does, however, see opportunity for multi-family development, assuming it's of sufficiently large size to be profitable (e.g., 150 to 200 units). Des Plaines

is experiencing growing diversity in its population, which suggests the need to add more diversity to the City's housing stock.

The retail portrait is less strong. There are no significant concentrations of national retailers and little cohesion to the retail space, which makes it difficult to compete with a number of nearby retail destinations for market share. Several near-term opportunity outlet types are identified, such as specialty food, limited service restaurants, pub/tavern, cosmetics/beauty, among others.

The office market is similarly challenged, and recommendations focus on filling vacancies downtown rather than building new. Redevelopment of the O'Hare Lakes Office Plaza as mixed-use is also recommended.

In terms of strategy, citywide recommendations are to focus on addressing issues with roads and the river, to the greatest extent possible, and ease of doing business. Specific implementation steps for the Oakton Street Corridor are to improve curb appeal and focus on retail gaps in eating and drinking establishments. Funding could be pursued via a mechanism such as a TIF or SSA district in the Oakton Street Corridor. Steps to launch a TIF began in summer 2019, encompassing the area along Oakton Street from River Road west to Webster Lane and along Lee Street from south of the K Mart store north to the intersection of where Graceland Avenue meets northbound Lee.

A Comprehensive Plan for Des Plaines, 2019 | This plan espouses a number of principles that support a potential infill NCS station in Des Plaines. For example, it is typically recommended that the creation of a major transportation amenity such as a transit station be accompanied by a supporting mix of land uses to ensure that the station is well-used; this mix of high-density residential and commercial land uses is often referred to as transit-oriented development (TOD). The Comprehensive Plan recommends expanding mixed-use development targets downtown, near the existing Cumberland Metra Station, and along Oakton Street (i.e., the potential site identified in this report). The plan highlights the need to provide a range of housing options such as townhomes and other higher-density multifamily residential properties (which are considered transit-supportive) and recommends updating zoning along the Oakton Street corridor to permit townhomes, rowhouses, and mixed-use development. Another plan recommendation is to incorporate inclusive growth principles by prioritizing investments in economically disconnected areas (EDAs); the Chicago Metropolitan Agency for Planning (CMAP) identifies the area to the southwest of the intersection of Lee Street and Mannheim as an EDA, a portion of which is within the half-mile station area.

The future land use map in the Comprehensive Plan indicated that the portion of the station area to the east of the CN tracks is intended for lower-density urban mix with residential, and the Oakton Street corridor to the west is commercial, with single-family residential to the south and west of Lee Street. These future land use designations are compatible with the transit-oriented development that may be expected to occur in tandem with the construction of a Metra station near the intersection of Oakton and Mannheim.

Other recommendations specific to the Oakton site include re-evaluating the above-mentioned Oakton Street / Elmhurst Road Corridor Study in light of the final recommendations from this study, complete a traffic and/or parking study for Oakton Street (as local businesses complain about parking and congestion issues), and evaluate the implementation of a tax increment financing (TIF) or special

service agreement (SSA) district to fund projects along the Oakton corridor such as streetscaping, façade improvements, parcel assembly for larger developments, public parking, etc.

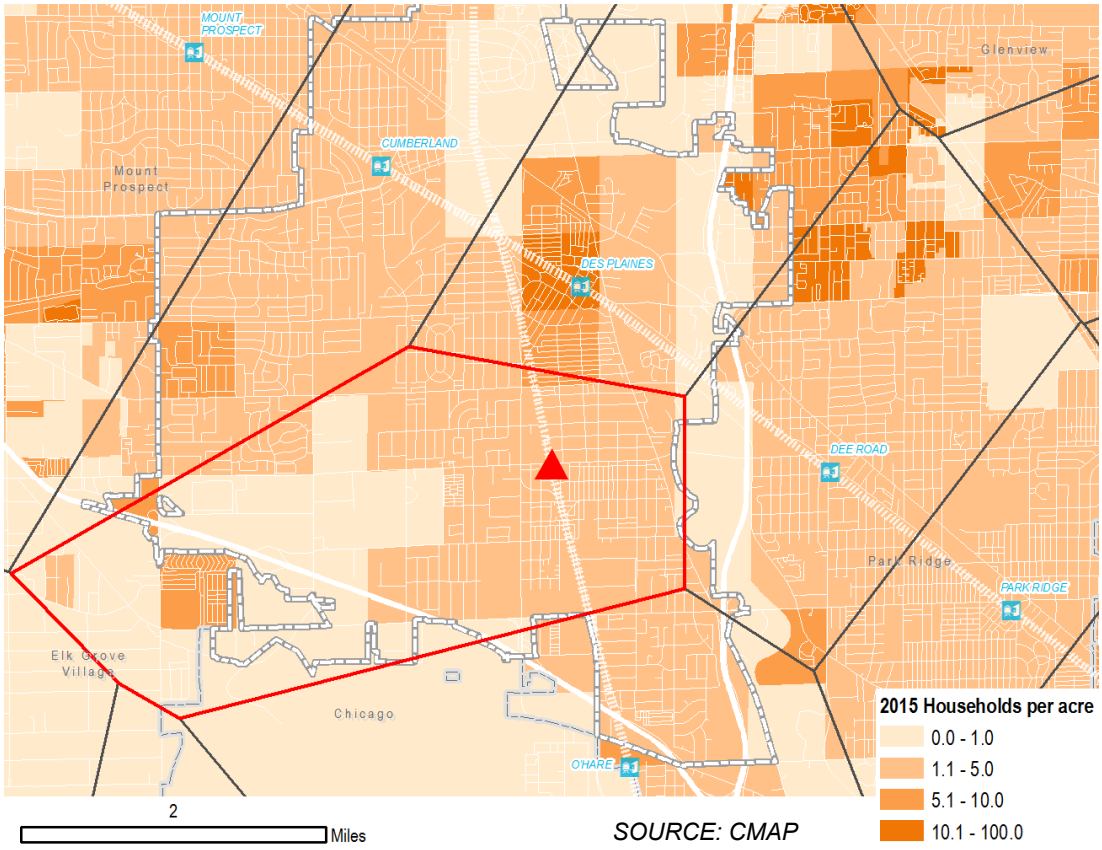
Part of the Comprehensive Plan—the Existing Conditions Issues and Opportunities chapter—completed a retail gap analysis, incorporating a 10-minute drive from the intersection of Oakton Street and Mannheim Road, finding that the opportunities are mostly auto-oriented retail outlets, which are less relevant as a component of TOD due to their typically lower densities. One exception is potentially "General Merchandise Stores." The understanding is that there is a great deal of competing retail nearby, and that it will be difficult to compete, particularly without supporting demographic growth to increase demand. The existing conditions analysis found that the Des Plaines housing market is performing comparably to or slightly better than benchmarks, and that there is an opportunity to diversify the housing stock to include more multifamily residential.

The Existing Conditions analysis reports that perceptions of vacancy along the East Oakton Street Corridor are high, and that the small size of parcels and shallow depth limit large-scale redevelopment, making parcel assembly by public agencies potentially impactful in supporting revitalization of the corridor. At the intersection of Oakton and Lee, dubbed Central Oakton in the plan, it is recommended that the focus remain on filling existing vacant retail, repositioning aging retail properties, and—in the longer term—filling in under-utilized parking lots or vacant sites. The plan identifies few opportunities for expansion in the West Oakton Industrial Corridor.

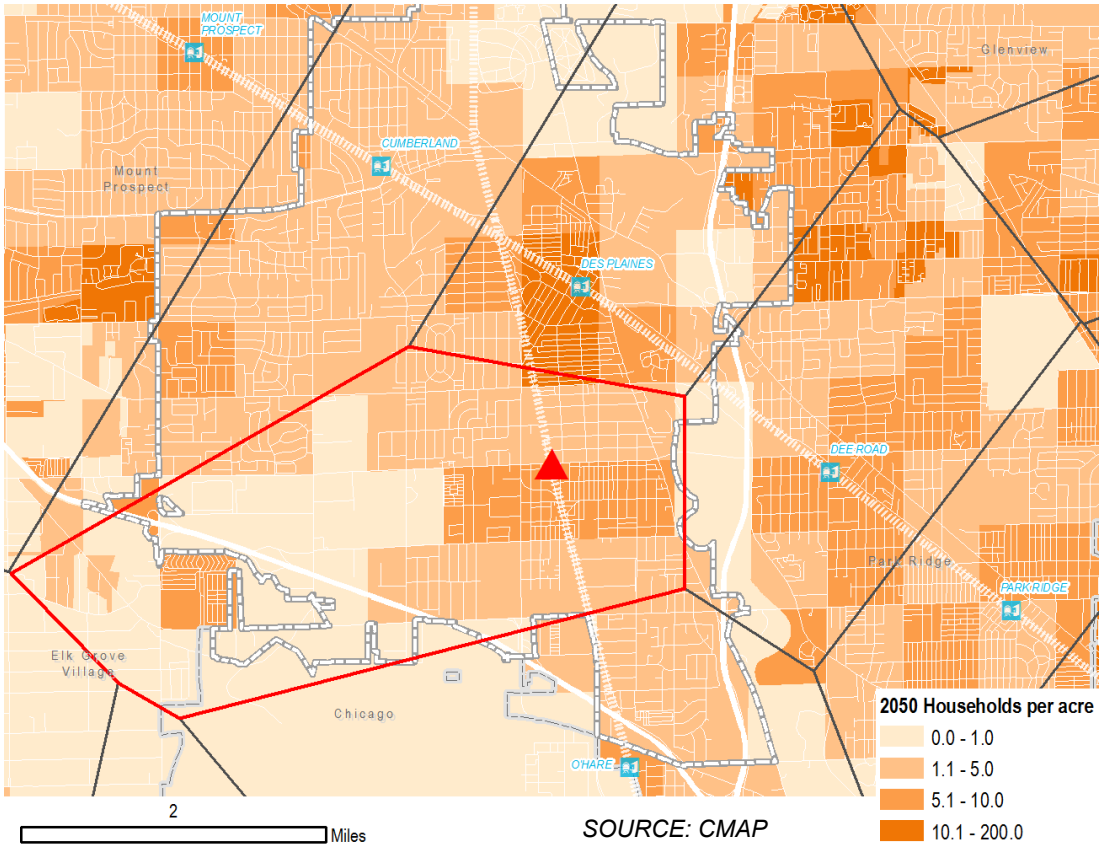
3.8.2 Socioeconomic Growth

CMAP data on the population, households, and employment per local allocation zone were gathered for the market shed. The current and future household and employment levels shed light on the potential feasibility of the Oakton station in terms of market demand. We assess these values more holistically here, but the forecast values are also incorporated into the travel demand forecasting in *Chapter 6: Travel Demand.* For a visualization of the socioeconomic data for the origin and destination market sheds, see Figure 3-30 and Figure 3-31. Detailed tabulations of Oakton station market shed socioeconomic forecasts follow.

Figure 3-30: 2015 and 2050 Household Density by Subzone

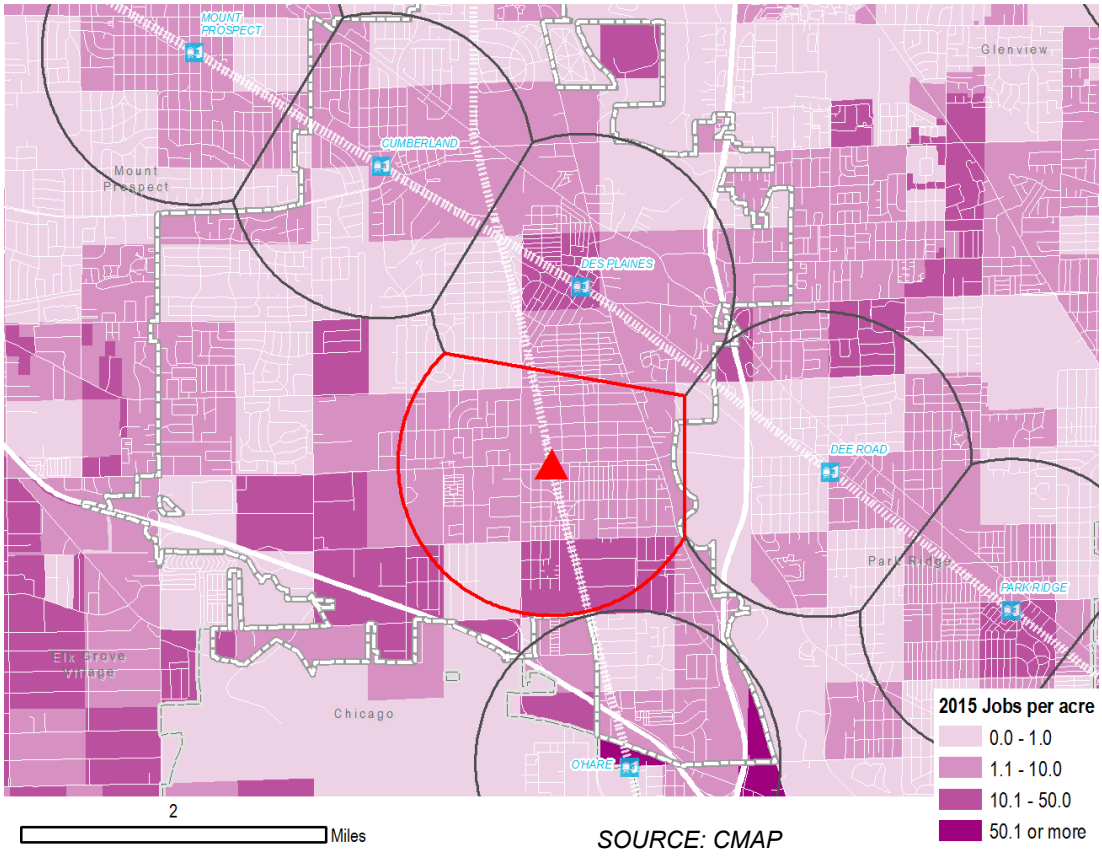


SOURCE: CMAP

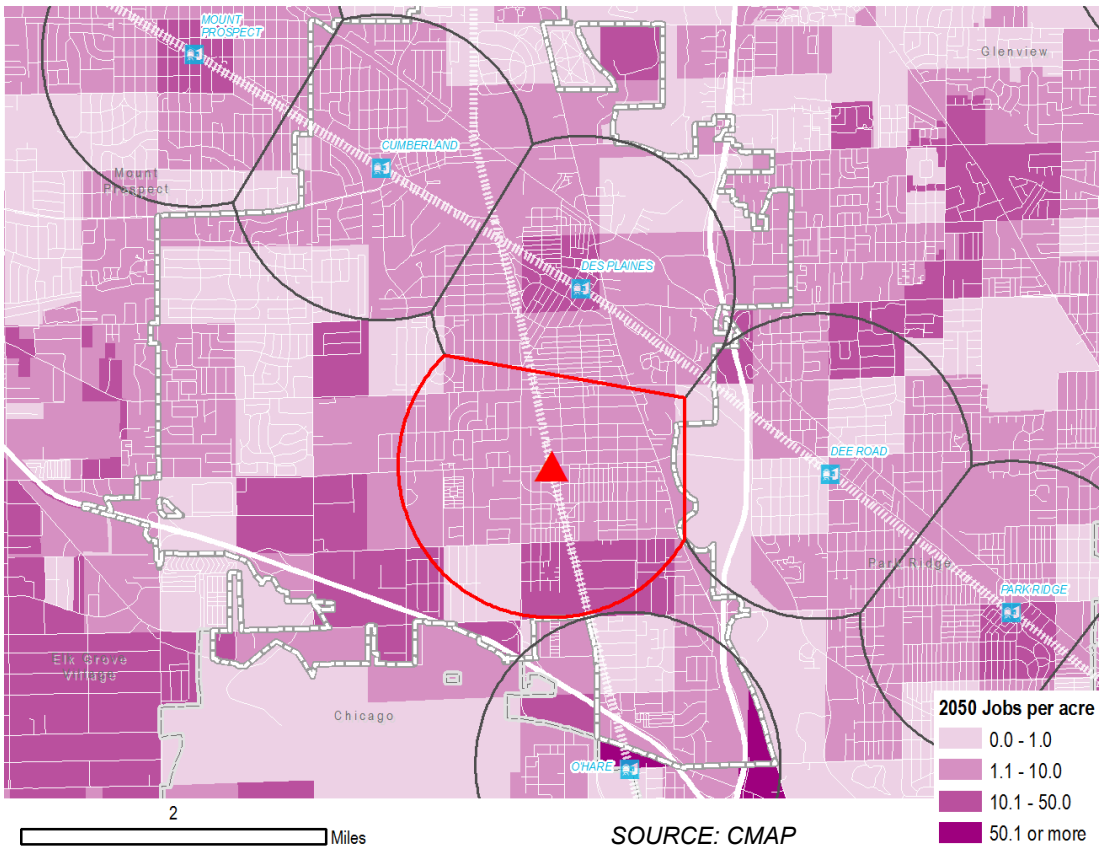


SOURCE: CMAP

Figure 3-31: 2015 and 2050 Employment Density by Subzone



SOURCE: CMAP



SOURCE: CMAP

In terms of households within the origin rider market sheds, the Oakton Street Station is expected to grow, adding 0.8% households annually 2015 through 2050, which translates to 2,390 new households, or a total of 9,817 households by 2050 (Table 3-6). This is faster than the annual growth rates of nearby NCS and UP-NW origin market sheds, which are expected to have 0.5% to 0.7% more households each year.

Table 3-6: Origin Market Shed CMAP Household History and Forecast by Subzone

Line	Station Market Shed	Households		Household Change (2015-2050)	
		2015	2050	Absolute	Annual
NCS	O'Hare Transfer	3,284	3,870	586	0.5%
NCS	Oakton	7,427	9,817	2,390	0.8%
NCS	Prospect Heights	13,524	16,671	3,146	0.6%
UP-NW	Dee Road	12,172	15,074	2,901	0.6%
UP-NW	Des Plaines	13,673	16,433	2,759	0.5%
UP-NW	Cumberland	8,866	11,437	2,571	0.7%

SOURCE: CMAP

Similar to adjacent NCS stations O'Hare Transfer and Prospect Heights, the potential Des Plaines Oakton Street station is expected to grow jobs more slowly, approximately 0.4% annually (Table 3-7). This is slightly faster job growth than is expected in the destination market shed of UP-NW Dee Road and Des Plaines stations. The Des Plaines Oakton Street station is expected to have 1,313 more workers by 2050, growing from about 8,337 to 9,651 workers.

Table 3-7: Destination Market Shed CMAP Employment History and Forecast by Subzone

Line	Station	Employment		Employment Change (2015-2050)	
		2015	2050	Absolute	Annual
NCS	O'Hare Transfer	16,498	18,811	2,313	0.4%
NCS	Oakton	8,337	9,651	1,313	0.4%
NCS	Prospect Heights	3,738	4,495	756	0.5%
UP-NW	Dee Road	7,639	8,365	726	0.3%
UP-NW	Des Plaines	7,472	8,163	691	0.3%
UP-NW	Cumberland	4,645	5,405	760	0.4%

SOURCE: CMAP

To summarize, the CMAP forecasts show growth for both the potential origin and destination Metra ridership markets for a Des Plaines Oakton Street station, though the area's growth rate is not projected to be exceptional in comparison with that of neighboring stations. It is important to note, however, that CMAP forecasts are completed at a metro level, and thus a more detailed analysis is often worthwhile in the case of smaller study areas, such as the station market sheds analyzed here.

3.8.3 Land Acquisition

Vacant or undeveloped land along Oakton Street to the immediate east of the proposed station location represents an opportunity to quickly implement critical station features such as commuter parking, drop-

off lanes, and passenger waiting areas. Land acquisition and consolidation will be required, as the property in question is not currently owned or controlled by the City; future acquisition or shared-use agreements with multiple owners will be required. Another important land consideration is the ComEd-owned utility corridor that runs adjacent to the east side of the tracks. Initial conversations with the utility have indicated that while shared use of—and access through—this property will be possible, development of any formal structures intended to support rail service will not be permitted. It is possible that the ComEd right-of-way also includes a gas pipeline, which will need to be confirmed. It is believed that no adverse hardscape station improvements are anticipated that would impact existing utilities.

On the west side of the proposed station, the size and consolidated ownership of the Oaks Shopping Center, whose property runs along the entire length of the anticipated platform, may provide an opportunity for expanded station facilities and amenities. However, the site's existing businesses and associated access and loading areas suggest that Metra station improvements on this land may need to occur over a longer-term implementation program. Preparation of any future plans for the west side of the station should also include a thorough study of opportunities for new transit-oriented development (TOD) that can support increased Metra ridership and overall economic vitality within the station area.

Beyond the land immediately adjacent to the proposed station, the City of Des Plaines is also actively involved in coordinating and marketing a potential TOD opportunity at the western edge of the station area. Located along the north side of Oakton Street at the intersection of Times Drive and Executive Way, the roughly 11-acre site has recently been consolidated and cleared. The majority of the site is owned by a private entity, but the City retains ownership and control of the existing street rights-of-way and has expressed interest in vacating these lands to enable a larger mixed-use residential development.

3.8.4 Conflicting Land Uses

There are few land uses within the station area that would preclude or greatly diminish the feasibility or viability of a new Metra station. However, due to the mature nature of the surrounding neighborhoods and existence of generally more restrictive single-family zoning, dramatic changes to the surrounding residential neighborhoods are unlikely in the future. On the other hand, the area's commercial uses—and large shopping centers in particular—represent a significant opportunity for future infill development or redevelopment. Many of these properties are inefficiently laid out or under-utilized, or have high vacancy rates and are generally poorly positioned relative to current market trends.

Another likely conflict point is traffic congestion on Oakton, which is widely viewed as an existing issue that may be made worse by increased railroad crossing times and higher traffic counts as the result of a new station and related development. While many local stakeholders have advocated for solutions to the current congestion that would favor auto-served businesses and travel, such as increased roadway widths, removal of on-street parking, and increased off-street surface parking; these interventions would seem to go against a vision for a more walkable, pedestrian-oriented district character in line with best practices for transit-served locations and development.

4. Market Assessment

4.1 Introduction

This chapter investigates market considerations to assess the feasibility of transit-oriented development near a potential infill station on Metra's NCS line in Des Plaines. This is an important consideration as the station may be not only be a transportation connection, but also a catalyst for revitalization and economic development in the surrounding area. The chapter will cover the following areas:

- Assessment of local real estate and TOD market trends, and
- Discussion of potential Oakton Station development scenarios and capacity.

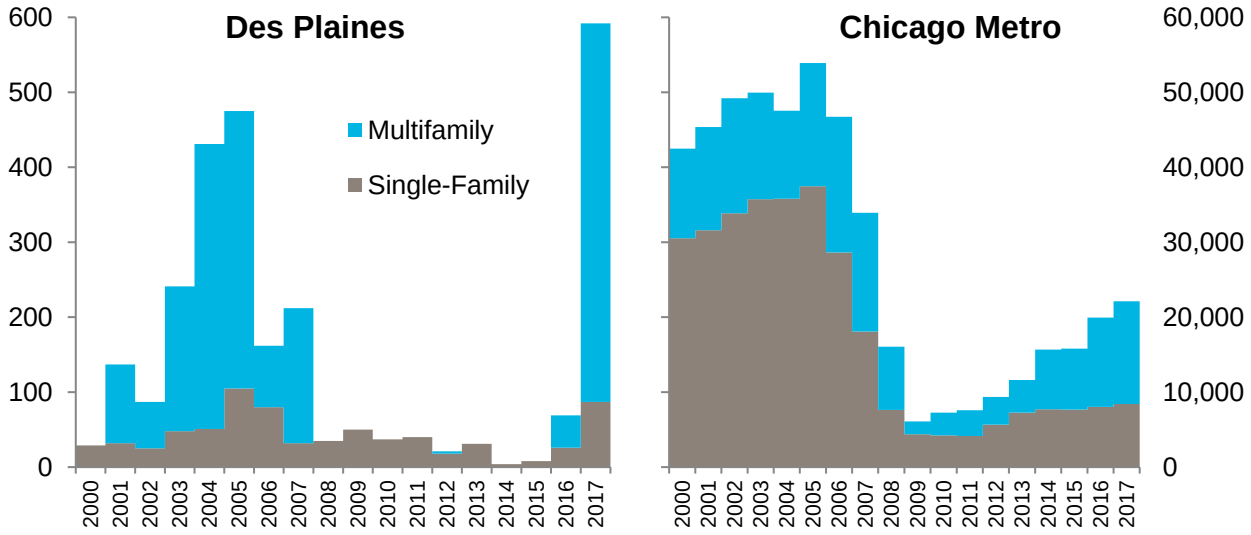
As noted in the previous chapter, the CMAP population and employment forecasts show growth of 0.8% and 0.4% annually from existing conditions for both the potential origin and destination Metra ridership market sheds for the Oakton Street station. It is worth adding that CMAP forecasts do not factor in the increase in value that the area would gain if a Metra station were to be built at the Oakton site. This value—resulting from lower transportation costs and increased accessibility for area residents and workers—can reasonably be expected to make the site more attractive and thus increase its share of regional socioeconomic growth from what is shown in the CMAP forecasts, though it is difficult to discern exactly how much. For this reason, the CMAP forecasts can be considered conservative estimates of demographic growth near the potential Oakton Street Station.

In addition to the existing conditions analysis from the previous chapter, it is important to consider several other topics in order to better understand and assess the potential Des Plaines NCS station market, including real estate market trends and potential absorption capacity.

4.2 Residential Market Trends

A number of data sources were analyzed to gain a better understanding of real estate market activity near the potential Des Plaines NCS station. Beginning with the building permit data reported in the State of Cities Data System by the U.S. Housing and Urban Development (HUD), we can trace the amount of new residential construction of various types. As shown in Figures 4-1, there was a dramatic drop in residential construction in Des Plaines in 2008, with multi-family ceasing almost entirely between 2008 and 2015, and single-family construction well below the highs seen in 2005-2006. The historical trends for the Chicago metro area are provided in the adjacent chart to illustrate that the Des Plaines' drop-off was part of the nationwide housing crisis and economic recession, though Des Plaines has been somewhat slower to pick up. However, there was a notable increase in 2017, with nearly 600 new housing units permitted, indicating renewed growth in the area. January through September 2018 figures show continued growth, with over 200 new permitted units. Generally, the data reveal strong and growing demand for multi-family development, with more multi-family unit permits issued than single-family across the metro area, and 40% multi-family permits in the suburbs in 2017 (i.e., excluding the City of Chicago permits from metro totals). Since 2014, the suburbs' share of multifamily development has grown from 28% to 40%. In comparison, pre-recession shares were typically 15% to 20%.

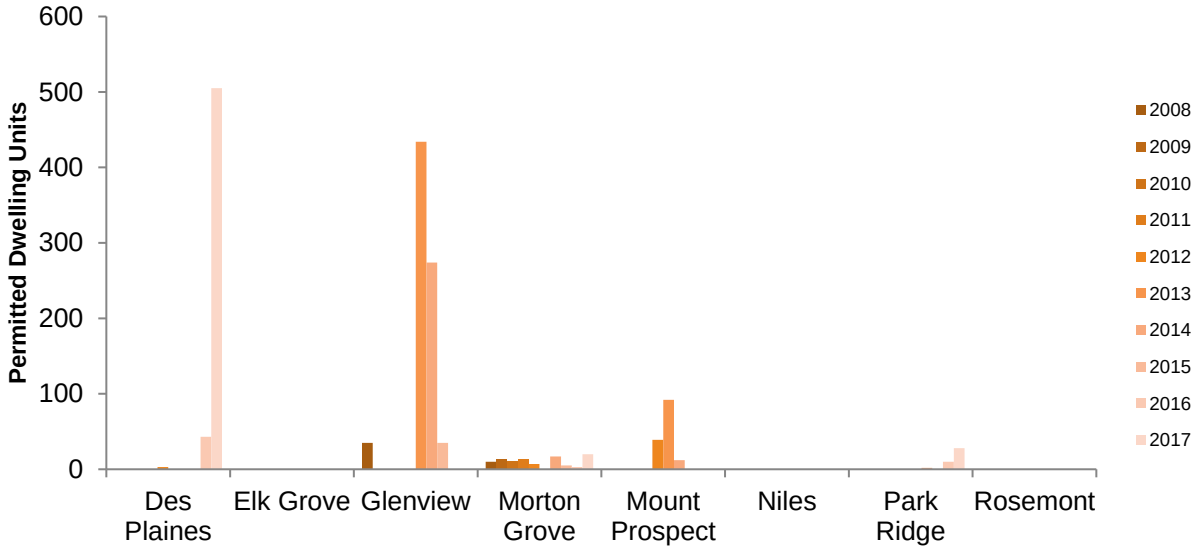
Figures 4-1: Building Permits (2000-2017)



Source: U.S. Census SOCDS.

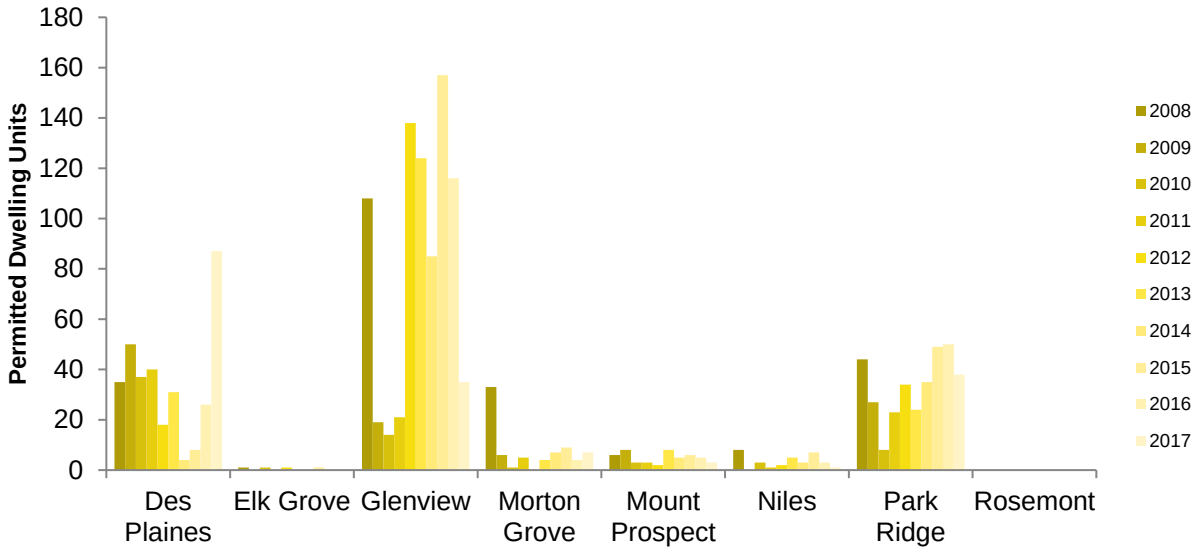
To compare performance in Des Plaines with neighboring municipalities, permit data were gathered for the recession and recovery period and presented by residential sector in Figure 4-2 and Figure 4-3. These figures indicate that Des Plaines has grown its residential stock faster than or at a similar rate with peers, with the exception of the Village of Glenview, which has seen greater expansion in both multi-family and single-family development.

Figure 4-2: Multi-family Building Permits (2008-2017)



Source: U.S. Census SOCDS.

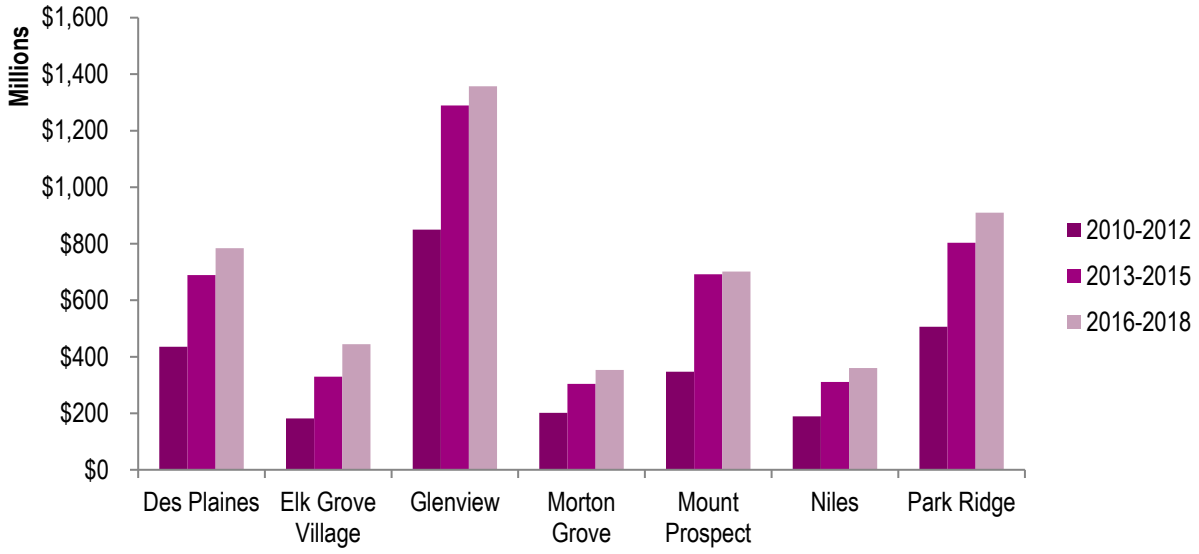
Figure 4-3: Single-family Building Permits (2008-2017)



Source: U.S. Census SOCDS.

Aside from new construction, it is also worthwhile to evaluate records of real estate sales transactions to better understand the value and desirability of residential properties in the Des Plaines area, as a measure of the health of the local market. Beginning with Des Plaines in comparison with nearby municipalities, Figure 4-4 shows rising sales volumes per three-year increments since 2010. Placing these total sales volumes in context with the Census-reported housing unit counts at the time shows an increase of 81% over this period for Des Plaines, which is roughly the center of the pack in terms of growth.

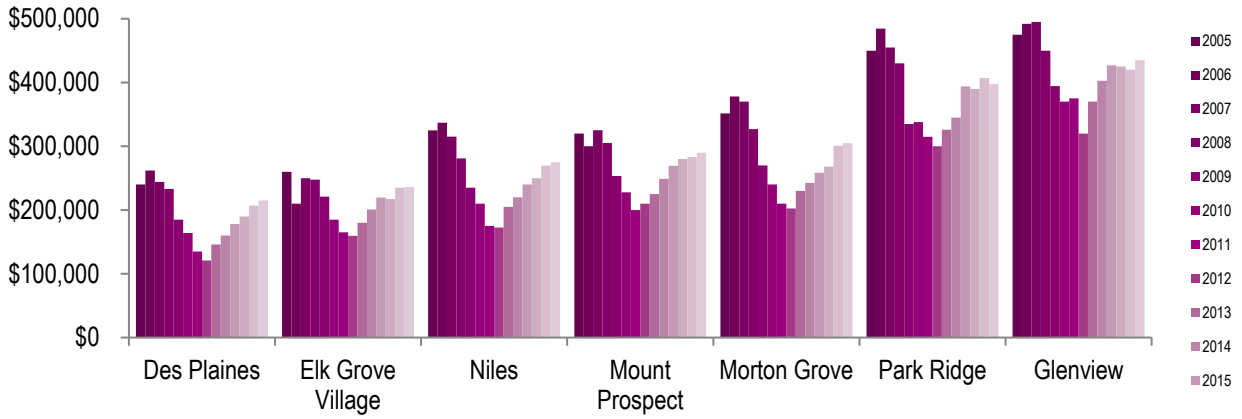
Figure 4-4: Residential Sales Transaction Volumes (2010-2018)



Source: Cook County sales transactions, published by Record Information Services at public-record.com

While Des Plaines is at the low end of the spectrum in terms of home values, the median housing price has risen steadily since the trough in 2012, with less plateauing than that seen in many other nearby municipalities (Figure 4-5).

Figure 4-5: Residential Median Sales Price (2005-2017)



SOURCE: Cook County sales transactions, published by Record Information Services at public-record.com
Note that sales transactions that did not report sales price are excluded. Residential sales include condominium and townhome units.

Returning to the theme of home affordability, Des Plaines and neighboring communities have seen the ratio of home value to household income fall during the recession and recovery periods (see Figure 4-6). Whereas homes once tended to cost about three times the nearby average household income, that ratio dropped to about half in 2012, and has risen to about 2.6 today (note that the reference income level is that reported in 2017, so these figures underestimate the earlier affordability ratios). Median home prices have been on the rise in recent years and ACS data from the U.S. Census Bureau indicates that the citywide median household income has generally remained stagnant at around $65,000 since 2012.

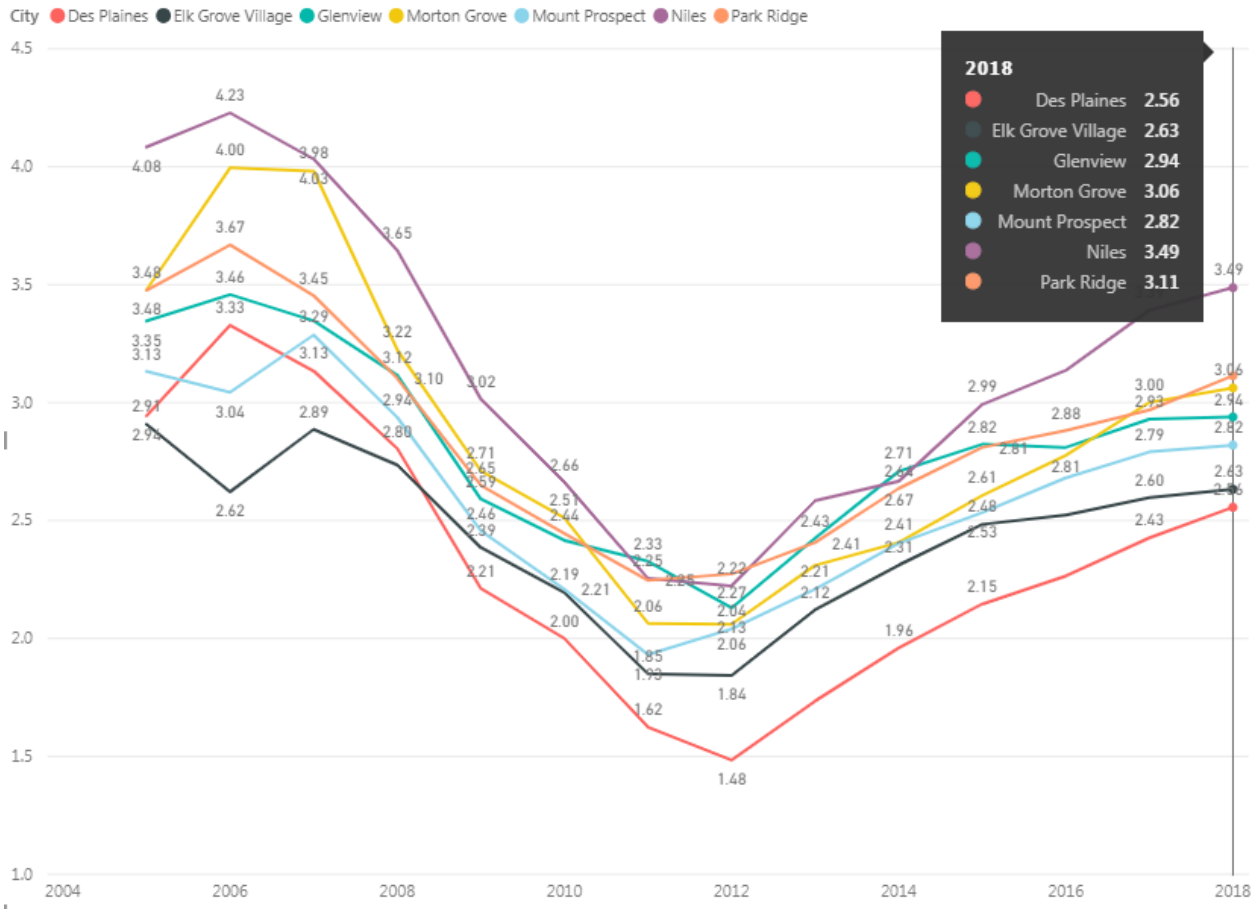
Analysis of the nearby income levels where these residential sales transactions take place suggests that over time home sales are occurring more often in higher-income areas of Des Plaines, as summarized in Table 4-1. Before the recession, 28% of residential transactions took place in locations with an average household income of less than $65,000, but between 2014 and late 2018, that figure had fallen to 20%. The mid-income tiers experienced a slight growth in the share of transactions, while the upper income areas (i.e., those with over $100,000 average household income) grew from 16% to 20%. Trends in the shares of total sales volume were similar.

Table 4-1: Share of Des Plaines Residential Market Activity by Nearby Average Income Levels

	Share of Transactions			Share of Volume		
Average HH Income	2005-2008	2009-2013	2014-2018	2005-2008	2009-2013	2014-2018
<$65K	28%	24%	20%	21%	15%	15%
$65K - $80K	23%	23%	24%	21%	22%	21%
$80K - $100K	34%	34%	35%	39%	39%	39%
> $100K	16%	19%	20%	19%	24%	25%

SOURCE: Cook County sales transactions, published by Record Information Services at public-record.com. Note that sales transactions that did not report sales price are excluded. Residential sales here and below include condominium and townhome units.

Figure 4-6: Median Ratio of Home Sales Price to Average Household Income



SOURCE: Cook County sales transactions, published by Record Information Services at public-record.com. ACS Average Household Income by Block Group (2017). Note that sales transactions that reported sales prices below $10,000 are excluded. Sales denoted as apartment buildings are also excluded, but condominium and townhomes are included.

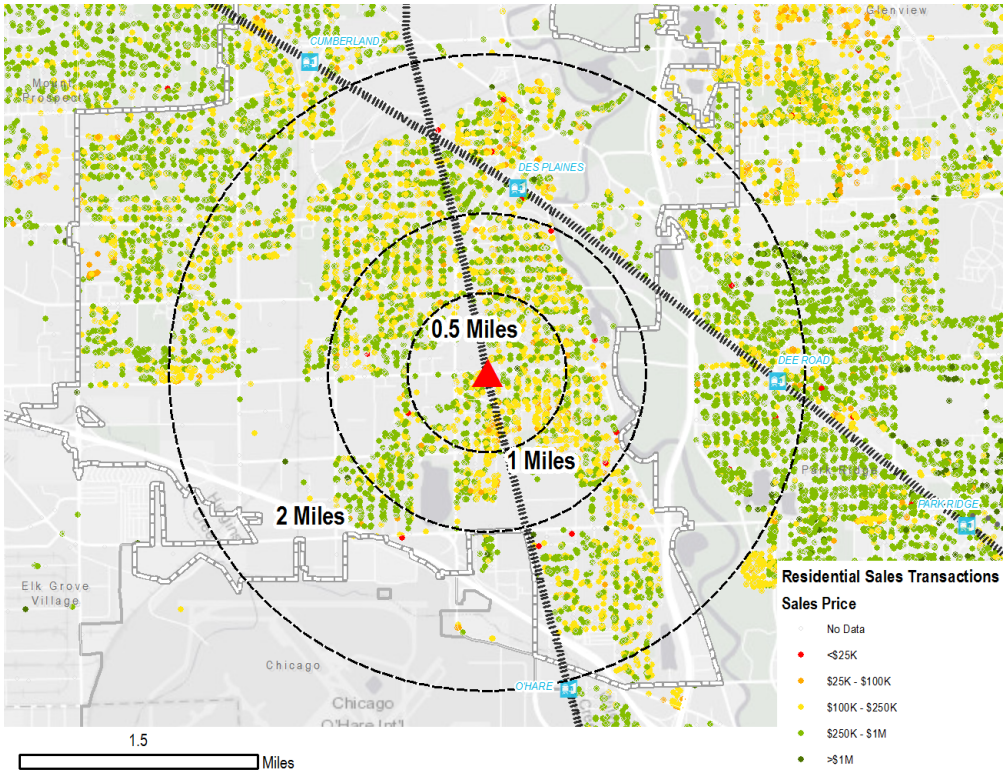
Looking closer at real estate activity near the potential Oakton station, average residential sales prices within certain radii of the site are provided in Table 4-2, with the city-wide average also shown as a point of comparison (the red bars show the difference between prices in the half-mile radius and citywide). Near the station, values have tended to be similar to those up to two miles away, though the area was more strongly affected by the downturn in 2008, after which the average sales price dropped precipitously. Since 2016, average sales prices have nearly caught up to the prices seen citywide or within 2 miles, which includes portions of Park Ridge (see Figure 4-7).

Table 4-2: Average Residential Sales Price (by distance from Oakton site)

	Half-mile	One-mile	Two-mile	Des Plaines	Half-mile vs. City
2005	$ 277,000	$ 275,000	$ 328,000	$ 315,000	$ (38,000)
2006	$ 312,000	$ 287,000	$ 315,000	$ 350,000	$ (38,000)
2007	$ 317,000	$ 290,000	$ 321,000	$ 331,000	$ (14,000)
2008	$ 270,000	$ 268,000	$ 285,000	$ 327,000	$ (57,000)
2009	$ 188,000	$ 198,000	$ 245,000	$ 230,000	$ (42,000)
2010	$ 189,000	$ 179,000	$ 227,000	$ 219,000	$ (30,000)
2011	$ 183,000	$ 184,000	$ 209,000	$ 204,000	$ (21,000)
2012	$ 170,000	$ 154,000	$ 192,000	$ 185,000	$ (15,000)
2013	$ 172,000	$ 161,000	$ 199,000	$ 211,000	$ (39,000)
2014	$ 187,000	$ 177,000	$ 242,000	$ 245,000	$ (58,000)
2015	$ 206,000	$ 203,000	$ 241,000	$ 238,000	$ (32,000)
2016	$ 240,000	$ 212,000	$ 254,000	$ 256,000	$ (16,000)
2017	$ 245,000	$ 219,000	$ 264,000	$ 264,000	$ (19,000)
2018	$ 243,000	$ 239,000	$ 271,000	$ 247,000	$ (4,000)

SOURCE: Cook County Sales Transactions, published by Record Information Services at public-record.com

Figure 4-7: Residential Sales Price (2005-2018)

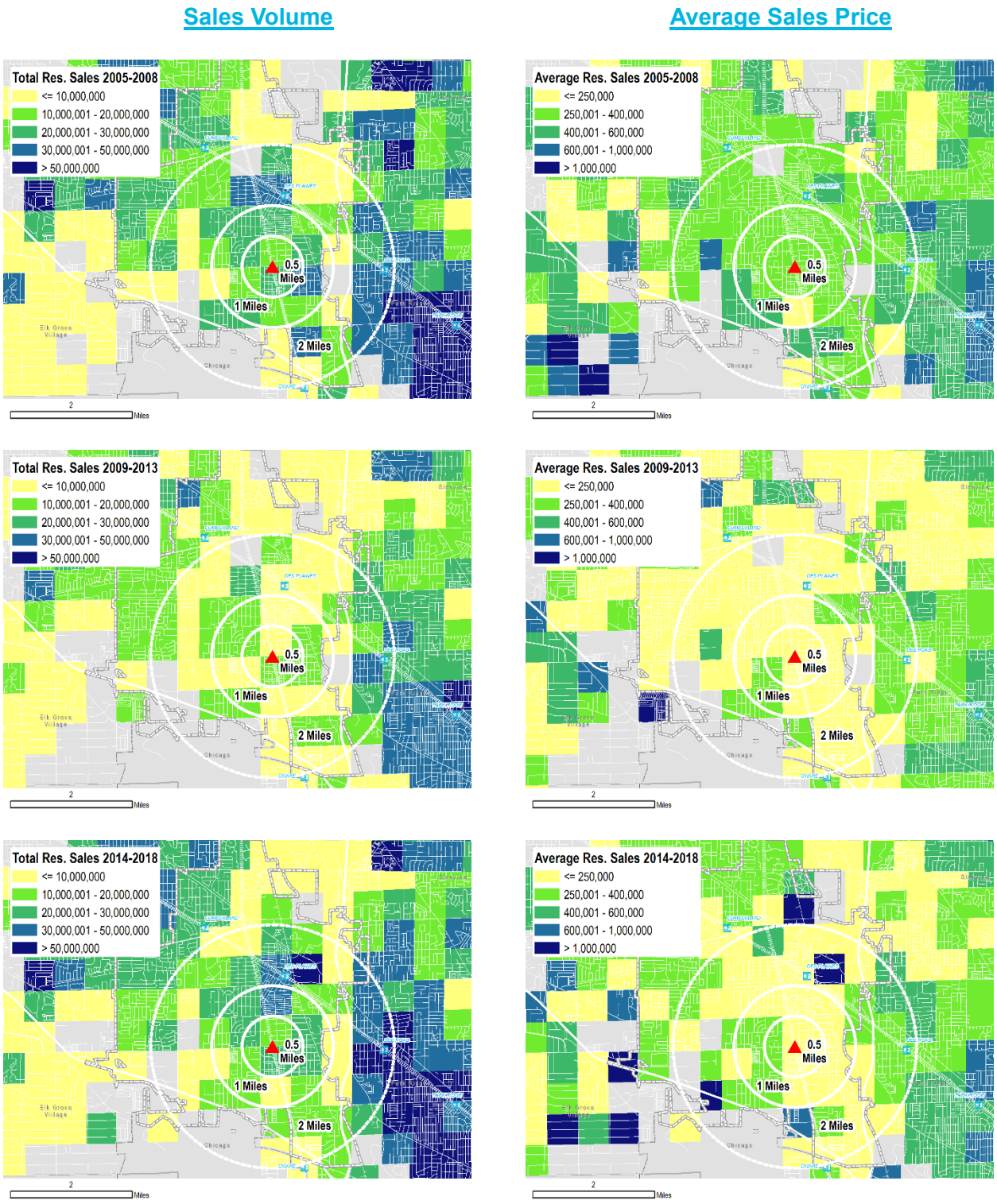


SOURCE: Cook County Sales Transactions, published by Record Information Services at public-record.com

Figure 4-8 shows the distribution of total sales volume and average sales price across the area over the period 2005 through 2018. The change in average sales prices between the 2005-2008 cohort and 2009-2013 cohort illustrates that the recession hit the whole city relatively equally. In 2014-2018, we see average prices creeping back to their pre-recession levels, but also note that there are pockets of

high-value transactions, indicating the growing influence of high-value multi-family real estate transactions.

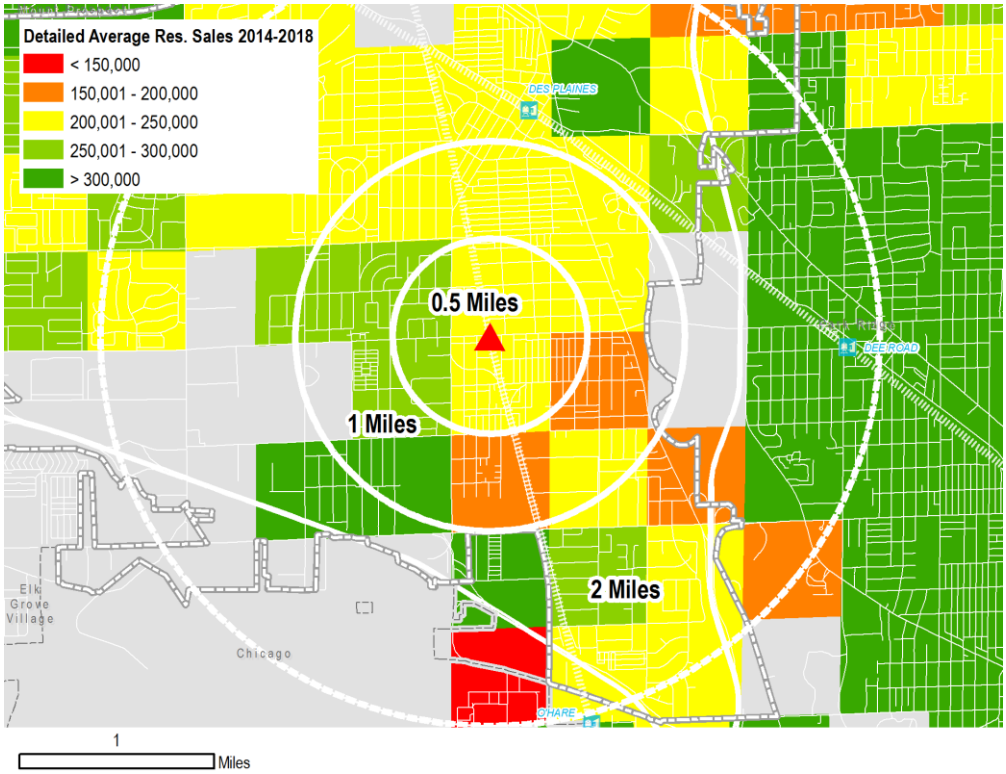
Figure 4-8: Residential Sales Volume and Average Sales Price (2005-2018)



SOURCE: Cook County sales transactions, published by Record Information Services at public-record.com
Note that sales transactions that reported sales prices below $10,000 are excluded.

Finally, Figure 4-9 shows that the potential station area includes areas with above and below median sales values, but no locations where homes have dangerously low values and are therefore likely to face insurmountable challenges to revitalization.

Figure 4-9: Average Residential Sales Price (2014-2018)



SOURCE: Cook County sales transactions, published by Record Information Services at public-record.com
Note that sales transactions that reported sales prices below $10,000 are excluded.

Key takeaways:

- Across the Chicago metro, multi-family has outpaced single-family unit construction since 2014, and the margin is growing. Excluding the City of Chicago to focus on the suburbs, multi-family permits have reached 40% of total permitted units, up from 12% in 2009. This suggests strong sustained demand for higher-density residential even in Chicagoland suburbs.
- After a long drought of multi-family development post-recession, Des Plaines construction finally picked up in 2017 and 2018, responding to pent-up demand. Single-family construction also spiked up to almost 100 units in 2017, the highest by far since the recession and greater than any neighboring municipalities
- Des Plaines is more affordable than neighboring municipalities. This has not hampered sales volumes, which have grown at a steady pace comparable to nearby municipalities, as have median home sale prices. Within the city itself, residential sales are increasingly robust in higher-income areas.
- Though residential home values near the potential station were hit harder by the recession, the nearby area has nearly caught up to the city-wide average. Based on sales transactions, there is no reason to believe that the area will face insurmountable challenges in revitalizing the local market. It may be seen by some residents or businesses as an affordable place to invest in comparison with more expensive areas nearby.

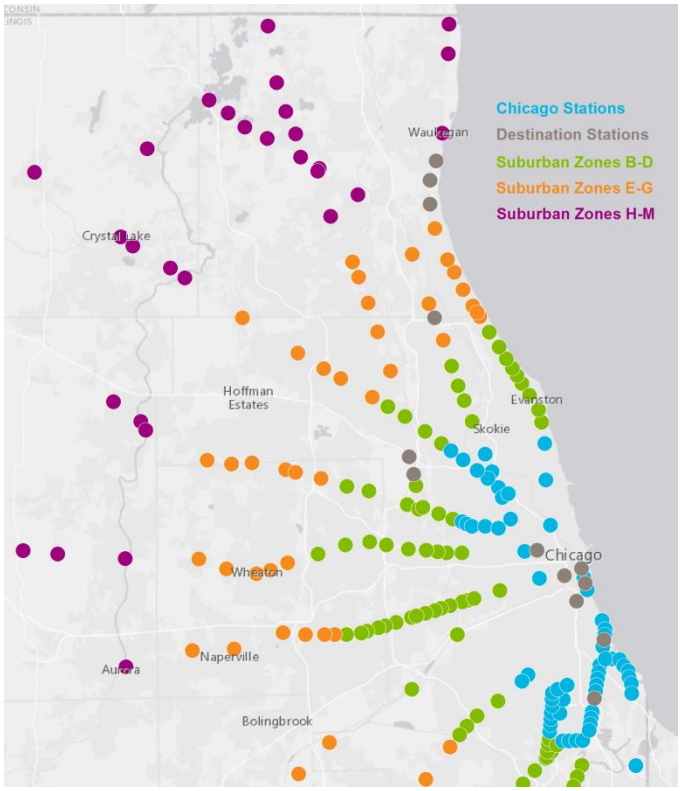
4.3 Transit-Oriented Development Trends

A fundamental consideration of the potential market for a new station in Des Plaines is the ability to attract, absorb, and support new development in the station's market area. To gain better insight into this key question, the development trends in the Chicago area were analyzed from several different perspectives. First, the development history within the half-mile area of Metra stations systemwide was analyzed as a whole and by station category. The intent of this analysis is to better understand the scale of commuter-rail adjacent developer interest that the potential Des Plaines NCS station is likely draw from. Then, the market trends in the geographic submarket (i.e., the CoStar-defined O'Hare submarket) and peer communities and stations were considered to gauge nearby trajectory and potential competition.

4.3.1 Metra Station Area Development Trends

Historical Metra station area (half-mile) data on commercial market inventory, occupancy, and rent trends were gathered from the CoStar real estate database for the first half of 2018 and back to 2006. This analysis focused on the office, retail, and multi-family markets in particular, and divided the analysis into short-term (2012-2018) and long-term (2006-2018) trends. The short-term focus was intended to identify the presence (or absence) of a shift toward urbanization, downtown concentration, and mixed-use developments. The long-term lens was intended to capture both the boom and bust development cycle to avoid overly optimistic projections based on the healthy development climate of recent years. Finally, the stations were divided into subgroups based on categories defined by Metra to analyze comparative station performance: Chicago (residential & non-residential stations), Suburban Fare Zone B-D (residential & non-residential stations), Suburban Fare Zone E-G (residential & non-residential stations), Suburban Fare Zone H-M (residential & non-residential stations), and Destination stations[2] (i.e., more AM peak alightings than boardings). See Figure 4-10 for the distribution of these stations across the Chicago metro area. The potential Des Plaines NCS station is most likely to be categorized as a Suburban Fare Zone B-D residential station.

Figure 4-10: Metra Stations by Category



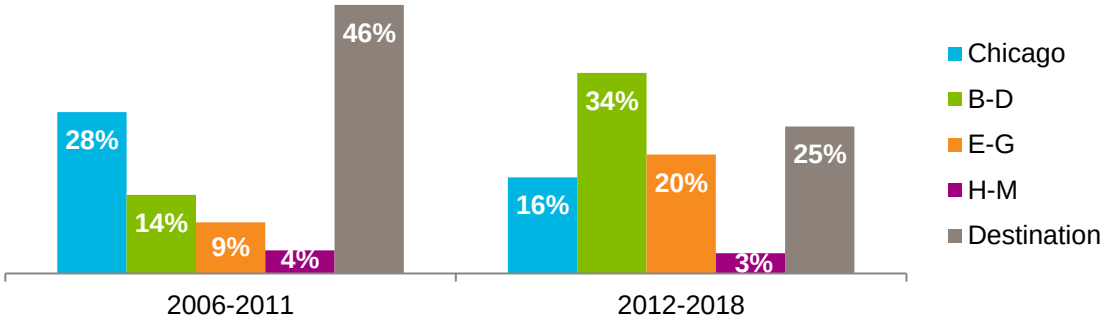
[2] Destination Stations based on 2016 boardings include: Museum Campus, McCormick Place, 59th St. (Univ. of Chicago), 95th St. (Chicago State Univ.), Lovana S. Jones / Bronzeville, Halsted Street, Western Avenue (MD/NCS), Lake Cook Road, Rosemont, O'Hare Transfer, Lake Bluff, Great Lakes, and North Chicago.

4.3.1.1 Multi-family

The multi-family market has seen nearly 18,000 housing units delivered within a half mile of a Metra station since 2006. The largest share (37%) was delivered near Destination stations, followed by equal levels near Chicago or near suburbs (Fare Zones B-D) (23% each). A combined 18% were delivered in more distant suburban station areas. In absolute terms, 3,900 units were delivered near Suburban Fare Zone B-D residential stations, or an annualized 320 units.

When we divide this 12-year history into older and more recent deliveries, we find a shift in favor of the near suburbs (shown in green and orange in Figure 4-11). Since 2012, the shares of development that have occurred in Suburban Fare Zone B-D and E-G have more than doubled, with B-D now leading with 34%. Interestingly, Chicago's share is down, as is the Destination stations' share. This suggests growing support recently for suburban TOD with a higher-density residential component—a typology likely to benefit strongly from a Metra station with good non-motorized accessibility, as well as have a positive impact on Metra ridership as correlated with the typical CBD commuting pattern.

Figure 4-11: Share of Multi-family Deliveries in Half-mile Metra Station Areas



Data source: CoStar (2018)

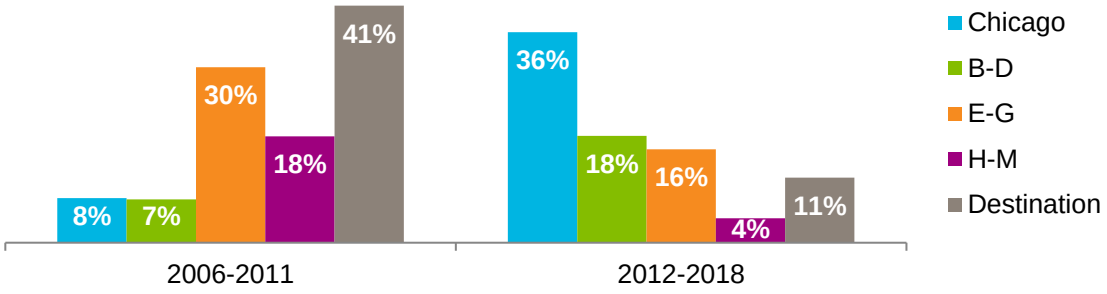
4.3.1.2 Office

In the office market, 2.5 million square feet of space has been delivered within a half mile of a Metra station since 2006. The largest proportion (over a quarter) has been located near Destination stations. Nearly half of the deliveries have been fairly evenly distributed across non-residential stations of varying geographies (15% in Chicago, and about 10% in each of the Suburban subgroups). The remaining 25% of office deliveries have been in residential station areas, with the vast majority in Suburban Fare Zone E-G. Specific to markets comparable to potential Des Plaines NCS station, 110,000 square feet have been delivered near residential Suburban Fare Zone B-D stations.

However, once we divide this 12-year history into older and more recent deliveries (Figure 4-12), we find that there has been a great deal of central area concentration since 2012, with the highest proportion of office deliveries now occurring in Chicago Metra stations (36%) rather than the widely distributed Destination Stations (41% in 2006-2011). The near-in suburbs have also grown to capture 18% of station area deliveries, up from 7%. This stands in contrast to the shrinking market share of outer suburbs and exurbs, leading one to conclude that developer and market interest in destination-oriented TOD is on the rise in Chicago and the near-in suburbs, outside of the established reverse

commute or otherwise destination-oriented stations (e.g., Lake Cook Road, McCormick Place, University of Chicago, Rosemont, Western Avenue, etc.).

Figure 4-12: Share of Office Deliveries in Half-mile Metra Station Areas



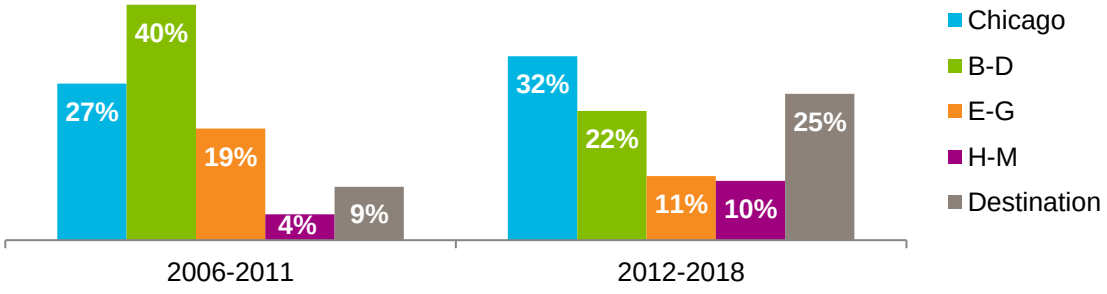
Data source: CoStar (2018)

4.3.1.3 Retail

Approximately 5.6 million square feet of retail space has been delivered near Metra stations since 2006. About a third of that development occurred near Suburb Zone B-D stations and slightly less (29%) near Chicago stations. Sixteen percent occurred near Destination stations and the same proportion near Suburb Zone E-G stations; the remaining 7% was near outlying stations. In absolute terms, Suburb Zone B-D stations received 1.9 million square feet of retail space since 2006, or 155,000 annually on average—and perhaps interestingly, 70% of this development occurred near stations classified as residential.

Comparing more recent trends with longer term, more retail space was delivered pre-2012 than post-2012 in absolute terms. This is true for the system totals and for all subgroups except the outlying suburbs (zones H-M) and Destination stations. This slowdown in retail development is common across most U.S. markets. In proportional terms, we can see that Chicago and Destination stations are now capturing larger shares of what retail development is occurring in recent years (Figure 4-13).

Figure 4-13: Share of Total Retail Deliveries in Half-mile Metra Station Areas



Data source: CoStar (2018)

In conclusion, we see a positive shift for the inner suburbs in terms of office and multi-family market share over the past five years, and development in the potential Des Plaines NCS station area would

be consistent with this trend. The decrease in retail deliveries is part of the nationwide slowdown in large retail centers, as major bricks-and-mortar retailers face bankruptcy and anchor tenant spaces become vacant and must be absorbed or converted to other land uses. Typically, the stronger retail segments are entertainment/ lifestyle-oriented, or discount retailers, which may be why we are seeing growth in deliveries in Chicago and destination stations (entertainment/lifestyle retail) and exurban (discount retail) locations.

4.3.2 Peer Development Trends

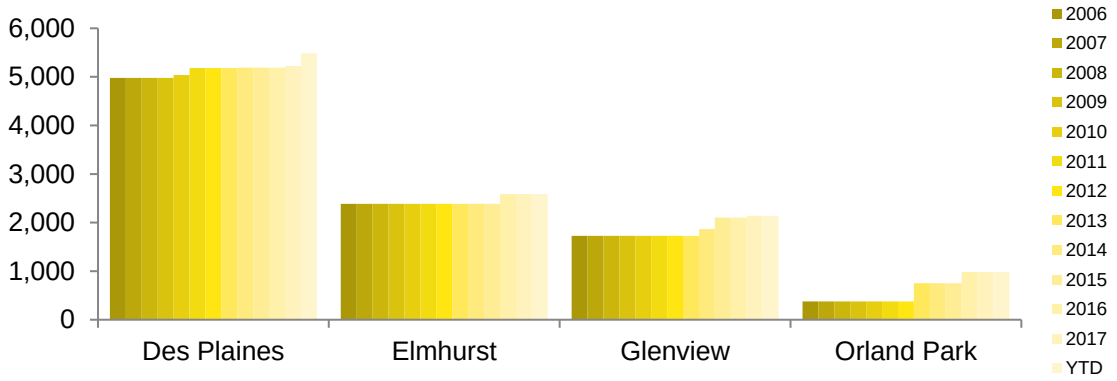
A number of peer municipalities and station areas were selected in order to help benchmark Des Plaines' potential future development. Elmhurst, Glenview, and Orland Park are comparable peers based on the number of housing permits reported to the HUD database, as well as the presence of a Metra station within their boundaries and comparable proximity to downtown Chicago. The group of Metra station areas studied includes: Des Plaines (UP-NW), Cumberland, Elmhurst, Glen of North Glenview, Glenview, Lombard, Orland Park 143rd, and Wheeling.

4.3.2.1 Multi-family

As of late 2018, the Des Plaines multifamily market inventory currently stood at about 5,000 units, with over 500 new units built between 2006 and September 2018. This 0.9% annualized growth is above the O'Hare submarket growth rate, but comparable to or below peer municipalities examined, which ranged from 0.7% to 8.7%. Much of Des Plaines growth has been in the last few years.

Among peer municipalities (Figure 4-14), the most robust growth has been in Orland Park, adding 600 units to its inventory since 2012, and Glenview, which added 400 units. Elmhurst has added 200 units. Similar to Des Plaines, all of this growth has occurred in recent years and suggests participation in a growing trend toward multi-family development. The developments appear to be fully absorbed and all municipalities show strong occupancy rates around 95%. The recent and upcoming deliveries in Des Plaines (Buckingham Place, Covington Lexington Woods, 1555 Ellinwood) should continue to be monitored for successful absorption.

Figure 4-14: Multifamily Inventory by Municipality

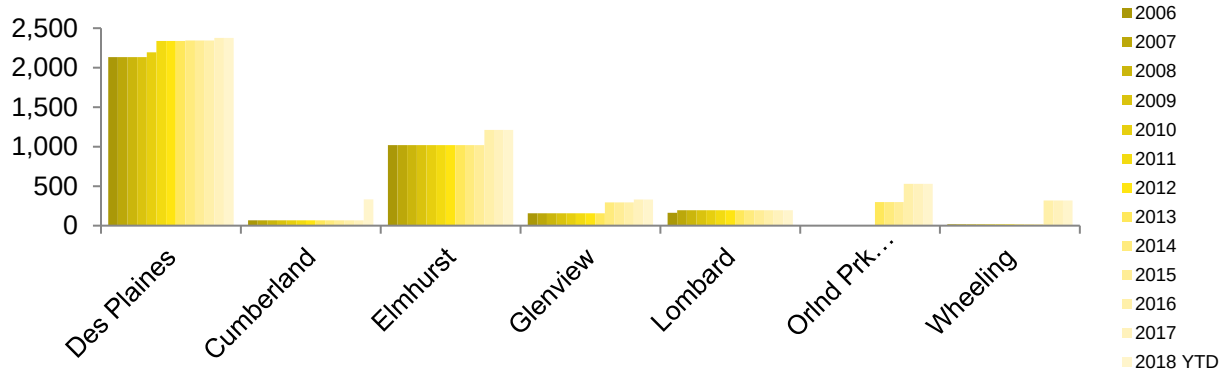


Data source: CoStar (2018)

Turning now to station areas (i.e., ½-mile) (Figure 4-15), the major growth has been observed in Orland Park 143rd St. (adding 530 units since 2012), Wheeling (adding 300 units), and Cumberland (adding 270 units). At the next tier are the Elmhurst and Glenview station areas, adding fewer than 200 units. There has been multi-family development near Glen of North Glenview, but it was outside of the half-

mile radius and thus is not included here. The downtown Des Plaines Metra station has the largest inventory among all peers, but it has grown relatively slowly in recent years, adding about 40 units since 2012. However, it has the highest occupancy rate, while Cumberland's is low due to the major delivery of about 270 units recently that had not yet been absorbed at the time the data were collected. There is no substantive multi-family market near the Oakton site, though there are a few developments just outside of the half-mile radius. Across all peers, vacancy rates average about five or six percent.

Figure 4-15: Multifamily Inventory by Half-Mile Station Area



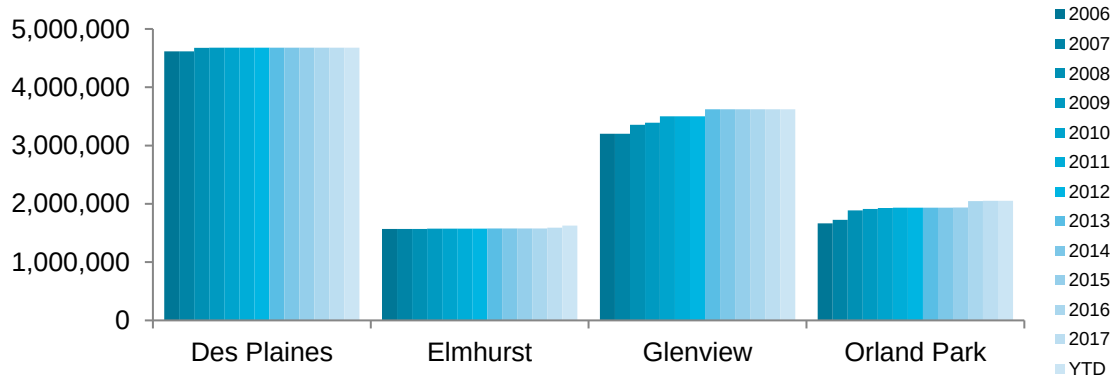
Data source: CoStar (2018)

4.3.2.2 Office

The Des Plaines office market inventory currently stands at 4.7 million square feet, with 64,000 sq. ft. built since 2006, or an annualized growth rate of 0.1% (less than the O'Hare submarket, which grew at 0.3%). There has been no new office construction in Des Plaines in recent years, unlike peers.

Among peer municipalities (Figure 4-16), the most robust growth has been in Orland Park, which grew at an annualized 1.8% by adding 385,000 square feet since 2006, and Glenview, which grew by 1.1%, adding 420,000 square feet. Both of these municipalities grew more pre-2012. A key difference is that Orland Park has grown its occupancy faster than its inventory, while Glenview has experienced softening demand. Des Plaines' office market occupancy has been growing slowly over both the short- and long-term, with stronger growth more recently, but at 83%, it is still below peers, which range from 86% to 95%. Wheeling is not included here due to its lack of historical office development.

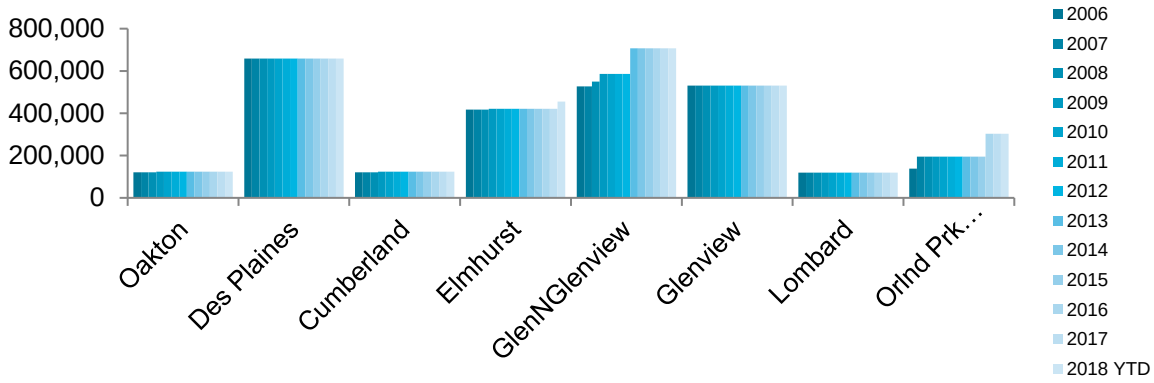
Figure 4-16: Office Inventory by Municipality



Data source: CoStar (2018)

For office development in station areas (Figure 4-17), the major growth has been in The Glen of North Glenview (adding 180,000 square feet since 2006, two thirds of that occurring since 2012) and Orland Park 143rd St (adding 165,000 square feet, one third since 2012). All of these station area deliveries were fully absorbed. In Des Plaines, inventory has remained basically steady since 2006, but there has been major growth in occupancy near the Oakton site (at the same time as a jump in reported rents), which has an office inventory of 124,000 square feet—similar to Cumberland but well below the 660,000 square feet near the downtown Des Plaines station.

Figure 4-17: Office Inventory by Station Area



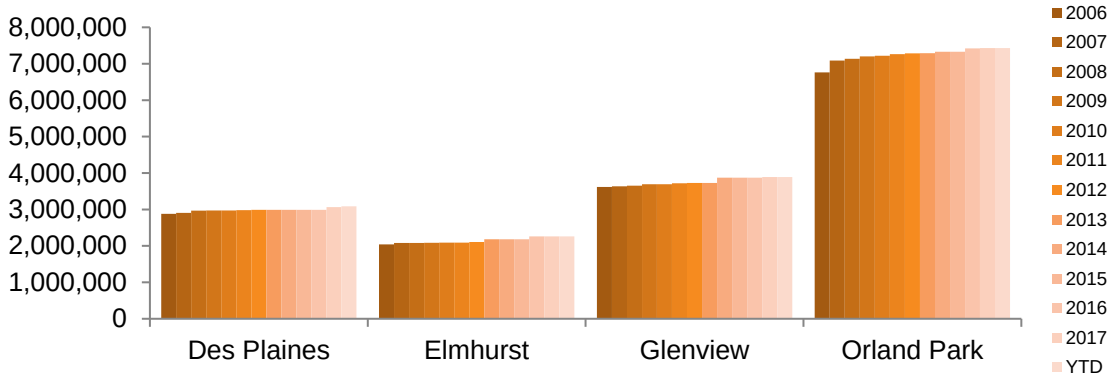
Data source: CoStar (2018)

4.3.2.3 Retail

The Des Plaines retail market inventory currently stands at 3.1 million square feet, with 204,000 square feet of reported deliveries since 2006 (an annualized growth rate of 0.6%). This is slower than the O'Hare submarket, which grew by 0.9% annually, adding about 1.3 million square feet since 2006 (most of that since 2012). Most of the submarket growth has been absorbed, and occupancy rates have risen to the mid-nineties, like Des Plaines.

Among peer municipalities (Figure 4-18), robust growth has occurred in Orland Park, which grew at an annualized 0.8% by adding 666,000 square feet since 2006, though its recent growth has been slower, about 0.4% annually. Glenview and Elmhurst have grown faster since 2012 than before, adding between 200,000 and 300,000 square feet, which translates into annualized growth of 1.3% and 0.8%, respectively. Cumulative net absorption has been positive across all municipalities, and occupancy has held fairly steady around 93% or 94% in recent years.

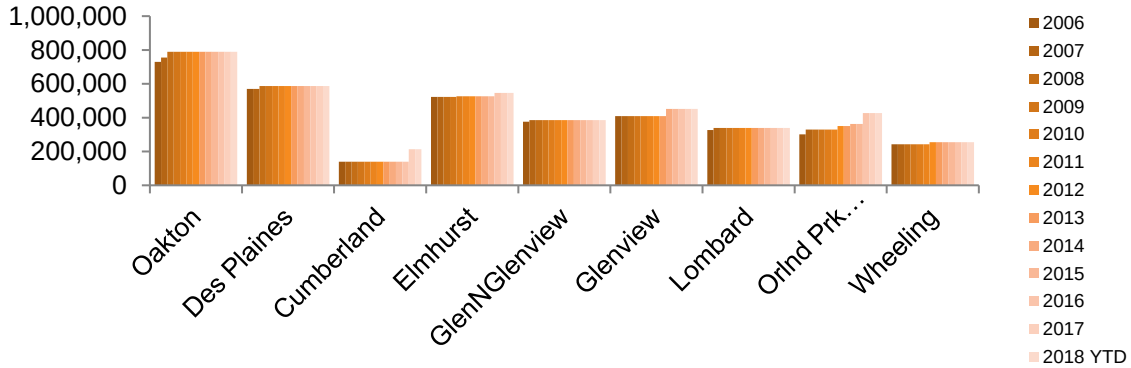
Figure 4-18: Retail Inventory by Municipality



Data source: CoStar (2018)

For station areas (Figure 4-19), the major growth of retail has been at Orland Park 143rd St., adding 126,000 square feet since 2006, over half of that occurring since 2012. In Des Plaines, there has been recent growth (about 73,000 square feet) near the Cumberland station; the only retail inventory growth near the downtown Des Plaines station or the Oakton site took place over 10 years ago. The Oakton site is notable for the amount of retail space it has nearby—much more than existing Metra stations, even in suburban downtown locations. However, the area is known to struggle with vacancy. Modest retail inventory growth has occurred in the Glenview and Elmhurst Station Areas, adding 43,000 and 20,000 square feet, respectively, since 2012. Reported vacancy rates are generally 10% or a little less.

Figure 4-19: Retail Inventory by Station Area



Data source: CoStar (2018)

Historic real estate activity as presented above is used to benchmark the Des Plaines NCS station with existing Metra stations in terms of development performance indicators and thus set reasonable expectations for development.

As an additional piece of context, takeaways from stakeholder interviews held with area developers are summarized below. Further detail may be found in the Chapter 5 *Public Outreach*.

- Local developers see potential for redevelopment in the area surrounding the potential Oakton station, while property owners have some hesitations due to substantial vacancies in the existing adjacent shopping center. The question of how to manage this site will be important, as there are significant implications in balancing walkability and connectivity with the need for adequate access, parking, and visibility for existing establishments.

- Multi-family development was highlighted as being especially promising in this location. Local developer input suggests primarily one- and two-bedroom units in redevelopment and infill projects, and at a more affordable price point than other recent projects in downtown Des Plaines due to the character of the surrounding area and the need for public investment in streetscaping, walkability, and traffic management. It was affirmed that such investments in the comfort and appearance of the public realm in this segment of the Oakton corridor will be crucial to future TOD activity.

4.3.3 Potential Oakton Station Development

4.3.3.1 Long-Term Potential Growth

The Metra system station area inventory and occupancy growth rates described above were analyzed over the short- and long-term to gauge potential levels of development at a station level over a 30-year horizon. Note that the results here are not intended as market projections or development forecasts; actual future development will depend on the decisions made locally in terms of public investment and support, zoning changes, incentives offered, along with a host of other factors. These results are intended solely as a guideline as the City and local stakeholders discuss development scenarios and plans for the potential station area.

The long-term occupancy trends in commuter rail-adjacent multi-family development were analyzed among Metra Suburban Fare Zone B-D residential stations, of which there are a total of 46. The long-term annualized growth rates were then applied to current occupied inventory to extrapolate to 2050. The current inventory was subtracted from the projected inventory (assuming a robust 95% occupancy) to determine the estimated deliveries within this market through 2050. For the purpose of this analysis, it is assumed that the proposed Oakton Station could feasibly capture 5% to 10% of the market deliveries among the 46 stations in its subgroup, based on the value boost the parcels receive thanks to new infrastructure and attendant amenities, as well as the presence of (re)developable land in the station area. It is noted that many suburban municipalities also have plans to encourage TOD in their respective station areas, which will make it a more competitive environment for the Oakton station. As such, it will be critical to have supportive policies and infrastructure for development in place to attract suitable projects, should that be the goal.

Given these assumptions, the estimated multi-family deliveries in the Oakton Station Area over the long-term (i.e., through 2050) are 600 to 1,200 multifamily units, before making adjustments based on the market assessment findings above. These estimates are based on long-term trends, inclusive of the full real estate cycle, and they therefore may not fully capture the recent growing trend in multi-family dwelling, which is difficult to parse from the general recovery after the housing crisis of 2008. For this reason, we consider these multi-family dwelling unit estimates conservative, and adjusting the estimates upwards to incorporate market trends[3] would be a reasonable exercise of professional judgement (though not necessary during this feasibility study phase of station planning).

As discussed in greater detail in *Chapter 6: Travel Demand*, the STOPS ridership model relies on CMAP demographic forecasts to gauge future travel demand at transit stations. The addition of a Metra

[3] As discussed in prior sections, the inner suburbs more than doubled the number of delivered units in 2012-2018 compared to 2006-2012. As there are no indications that this shift in favor of suburban multi-family residential as an attractive housing choice for many population groups that are unable or unwilling to enter into homeownership, we do not expect a reversal of this trend.

station at Oakton Street can be expected to significantly alter the development of the station area and attendant demographic forecasts. We provide details about the current CMAP 2050 forecasts (which does not assume a commuter rail station at this location) for additional context. The CMAP forecasts used in the ridership modeling are at the subzone (or quarter-section) level; there are 4 subzones per Transportation Analysis Zone (or TAZ), which is the input to the ridership model (Tables 4-3). These subzones and TAZ are depicted in Figure 4-20, and are labeled with the CMAP growth in households in Figure 4-21.

Tables 4-3: Demographic Forecasts by Subzone in the Oakton Station Area

CMAP Population Forecast			
Subzone	2015	2050	Growth
1995	1,326	1,650	324
1996	1,068	1,367	299
1999	1,134	1,404	270
2017	1,748	2,161	413
2018	2,098	2,382	284
2021	1,988	2,308	320
Total Population Growth			**1,910**

CMAP Household Forecast			
Subzone	2015	2050	Growth
1995	487	677	190
1996	380	522	142
1999	435	584	149
2017	657	898	241
2018	659	820	161
2021	724	896	172
Total Household Growth			**1,055**

Source: CMAP

Figure 4-20: Household Count by Subzone (2015)

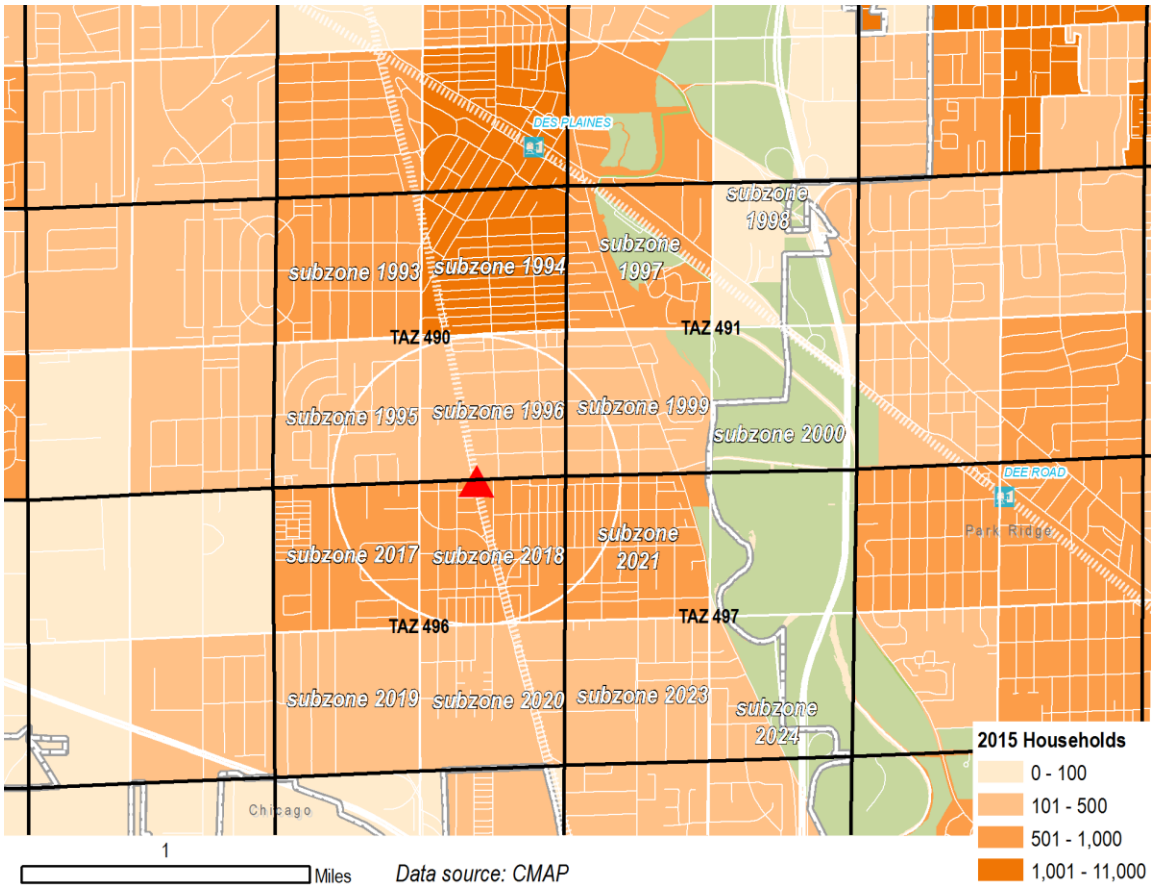
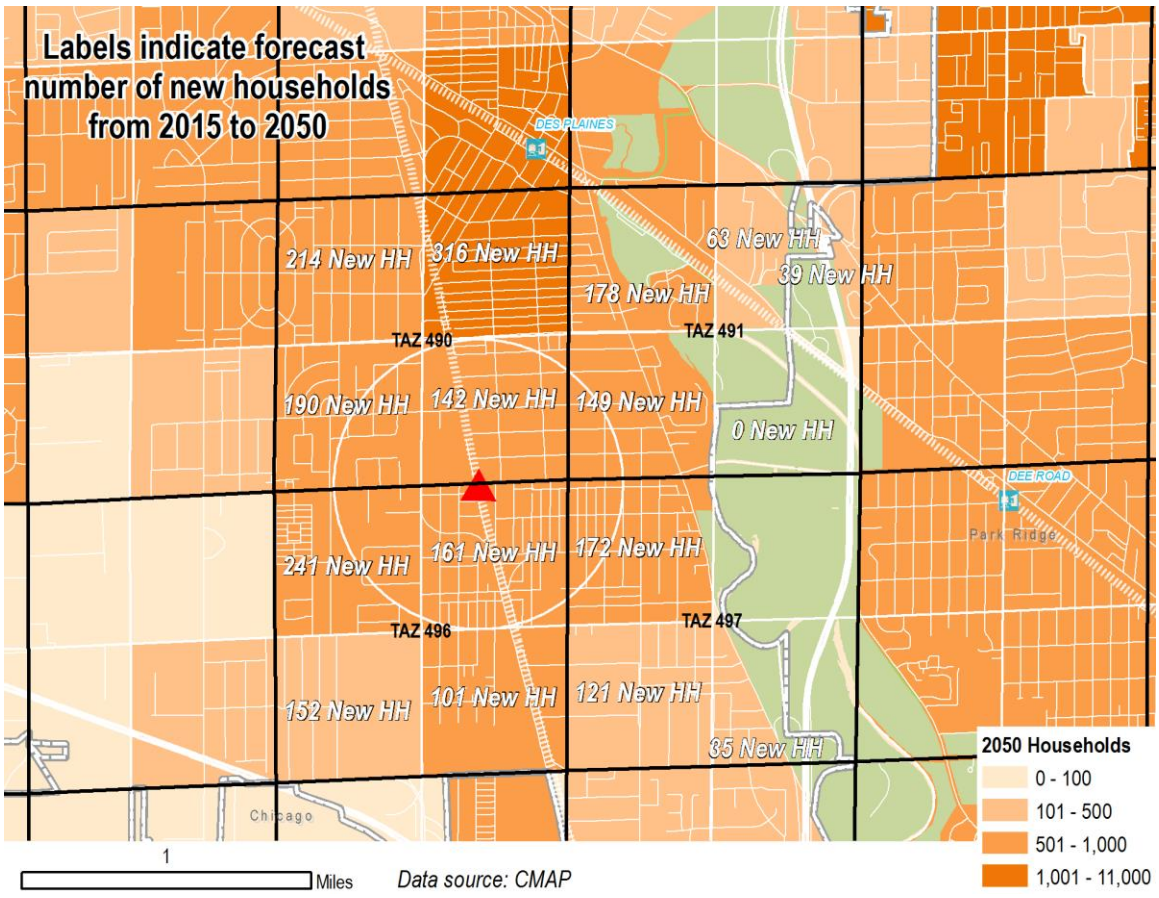


Figure 4-21: Household Count by Subzone (2050), with CMAP 2015-2050 growth labeled



By 2050 CMAP forecasts project 1,055 new households and 1,910 new people living in the subzones that touch the Oakton station area. This is within the range of the long-term TOD guidelines provided above (600-1,200 households), and reflects a substantial amount of organic growth in the area.

4.3.3.2 Site-Specific Development Opportunities and Prototypes

While virtually all parcels within the station area have been previously developed, there is a considerable amount of land in close proximity to the proposed station that could be strong candidates for transit-oriented development in the future due to existing vacancies or functional obsolescence. These candidate sites have been identified and categorized based on suitability for redevelopment on the accompanying map (Figure 4-22). In total, these sites represent roughly 54 acres of land suited for redevelopment within the long-term, or approximately 10% of the gross half-mile station area.

Near-Term Redevelopment Opportunity Sites

In Figure 4-22, the sites identified in red represent properties that either have been cleared and are ready for development or have substantial portions of the property that are under-utilized or vacant and could be redeveloped with minimal disruption to existing business operations. Chief among these is the 11.7-acre Site B located along Oakton Street, near the intersection of Executive Way, west of Mannheim/Lee. The City of Des Plaines has been actively involved in marketing this site for mixed-use

and multi-family redevelopment and has expressed a preference for proposals that feature a transit-oriented approach. In total, these properties account for just over 16 acres, as outlined below.

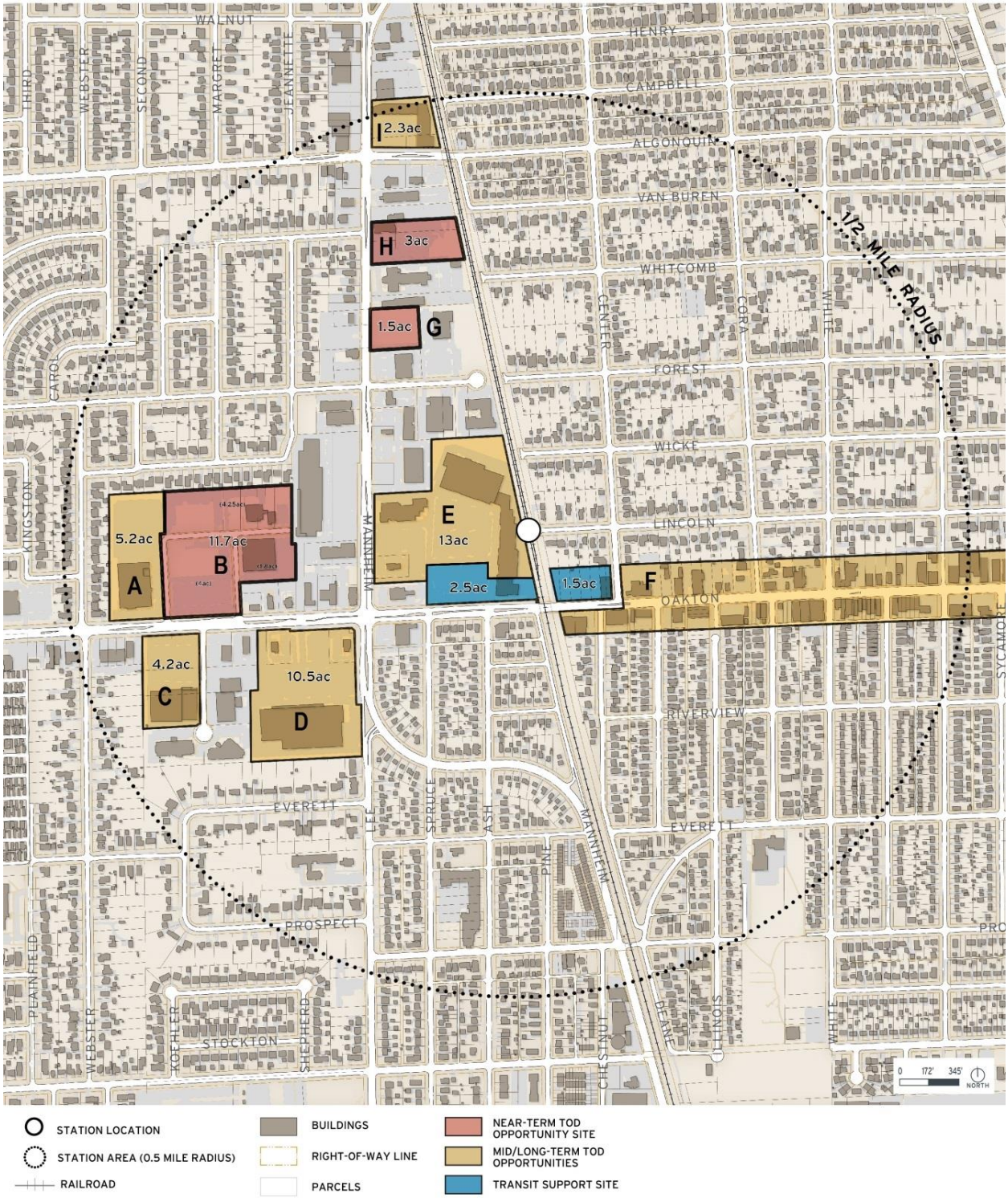
- **Site B** (±11.7 acres) Large high-priority opportunity site with potential for a mix of apartments, townhomes, and mixed-use development.
- **Site G** (±1.5 acres) Small opportunity site with potential for commercial, multi-family residential, or mixed-use development.
- **Site H** (±3 acres) Moderate site with potential for redevelopment as a multi-family residential or mixed-use development.

Mid- to Long-Term Redevelopment Opportunity Sites

The remaining redevelopment opportunity sites identified within the immediate station area total roughly 40 acres. The majority of this land comprises large parcels located near the primary Oakton-Mannheim intersection with generally under-performing retail uses, including the Oaks Shopping Center (Site E) located immediately adjacent to the proposed station and the substantial Kmart property (Site D) to the southwest. Based on the size and location of these properties, it is conceivable that portions of these sites could be infilled with residential development or completely redeveloped as TOD projects over time. Similarly, the U.S. Post Office site at the western edge of the station area could potentially be added to the near-term Executive Way site as a future phase or developed independently, should the USPS decide to vacate.

- **Site A** (±5.2 acres) – Medium/large site with longer-term redevelopment opportunity as a stand-alone project or future phase component of Site B.
- **Site C** (±4.2 acres) – Medium/large site with potential for future redevelopment as multi-family or mixed-use.
- **Site D** (±10.5 acres) – Large, high-priority opportunity site for future mixed-use redevelopment. Site is adjacent to planned Pace Pulse Dempster Line stops on Mannheim/Lee, providing additional strength for transit-supportive use.
- **Site E** (±15.5 acres) – Large, top-priority site for future transit-oriented redevelopment with multi-family residential and mixed-use. Future redevelopment of site would also include station-supportive amenities and uses. Any future changes would need to maintain or enhance existing retail use and ensure on-going commercial viability.
- **Corridor F** (redevelopment sites to be determined) – The *Oakton Street/Elmhurst Road Corridor Study* (Des Plaines, 2009) included ideas for future development in the planning district along Oakton east of the CN tracks (i.e., Oakton Mixed-use District).
- **Site I** (±2.3 acres) – Small, lower-priority site with opportunities for infill or future mixed-use and/or multi-family development.

Figure 4-22: Potential Opportunity Sites for Future Redevelopment



Incremental Infill

A third source of increased residential density within the study area could come from infill development on smaller residential properties or as mixed-use development opportunities along Oakton to the east (Site F). Measurable change within these areas is unlikely in the immediate future given that most of the surrounding residential fabric is mature and currently protected by single-family zoning. However, it is possible that incremental increases in density could occur over time. The most likely source of this change would be properties fronting or in close proximity to Oakton Street.

Development Prototypes

As noted earlier in this report, Des Plaines has had a spike in transit-oriented residential development in recent years. As a result, there are several models for new development that have demonstrated viability within the community. One prominent example is the recent 18-acre Buckingham Place development near the Cumberland Metra Station. This development consists of two components—for-sale townhomes and a multi-family rental development 'wrapped' around a parking structure. The multi-family component consists of 270 units on roughly 4.3 acres, or approximately 60 units per acre (net). The townhome component includes 94 units on 7 acres, equaling a net density of about 13 units per acre. Taken in whole, the project provides a model for flexible, suburban, transit-oriented development with a diversity of unit types at a gross density of about 20 units per acre.

The Buckingham Place development features multi-family apartments and townhomes on 18 acres.

5. Public Outreach

5.1 Introduction

As a part of this study, a thorough community outreach effort was conducted to understand how various stakeholders view the possibility of a new Metra station in the area. This engagement effort began with an awareness campaign to ensure all relevant community members knew that the project was underway and understood the associated goals and timeline. From there, several channels were used to gain input and understand the key issues and concerns of the community. The methods and findings of this outreach effort are summarized in this chapter, which will cover the following topics:

- Project Branding and Collateral
- Social Media Campaign
- Stakeholder Feedback
- Online Survey and Website Responses
- Community Open House Input

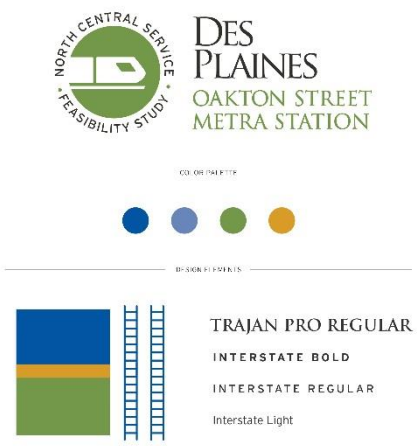
5.2 Project Awareness

The baseline of any community engagement effort is awareness—ensuring the public knows that a process is under way and that project information is easily accessible and marketed to the community. Following the selection of Oakton Street as the proposed station location, a community engagement plan was assembled and refined with input from City of Des Plaines staff and marketing team. The following key tactics were used as a part of that plan to achieve awareness of the Des Plaines Oakton Street Metra Station Feasibility Study.

5.2.1 Project Branding and Website

In order to provide information for area residents and stakeholders in a consistent and clear manner, a project brand was designed. This brand included colors and type treatments in keeping with the City of Des Plaines branding, which includes green and yellow graphics paired with a strong serif font. The blue from the Metra logo was also used throughout engagement graphics to draw a visual connection to Metra train service. Project materials use bold colors and duotone images to connect engagement materials to the proposed station location.

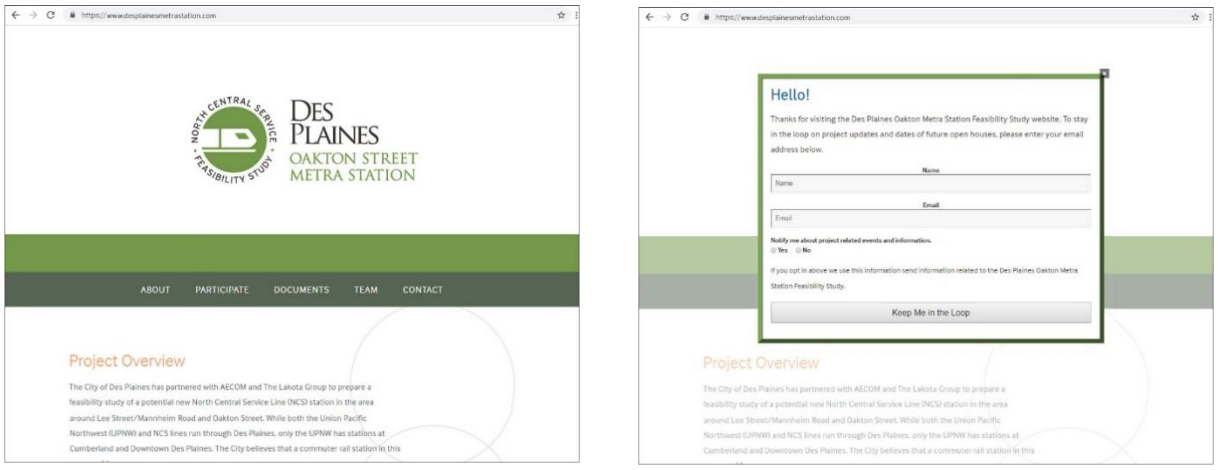
Figure 5-1: Project Branding



With the project brand as a starting point, a website was developed to house information and generate buzz around the project. A custom domain name was purchased to ensure the URL was easy to remember and easy to find—http://desplainesoaktonmetrastation.com. The project website was updated on a regular basis to include links to the online survey, information about the open

house, and a catalog of documents and technical memoranda related to the project. The website included a pop-up that asked page visitors to enter their email to stay up to date with the project and featured a contact section where page visitors could ask questions or share their thoughts about the project. As of June 3, 2019, the project website had **1,046-page visits** and 86 email subscriptions. Project-related information, such as invitations to upcoming open houses and available technical memoranda, was emailed to project subscribers throughout the project.

Figure 5-2: Project Website



5.2.2 Social Media

Figure 5-3: Project Facebook Page

In addition to the project website, a project Facebook page was developed. This Facebook page was co-hosted and moderated by The Lakota Group, in collaboration with the City of Des Plaines Communications Coordinator. The page was promoted to Facebook users who live within 5 miles of the proposed station (1349 East Oakton Street) and was shared with local business owners and the Des Plaines Chamber of Commerce. As of June 3, 2019, the Des Plaines Oakton Street Metra Station Feasibility Study Facebook page had 53 likes, 114-page views and had reached 1,147 Facebook users. Links to the project website and project Facebook page were also shared on the City's website and e-newsletter.

5.2.3 Awareness within the City and Local Businesses

The city formally announced the project at City Council meetings on January 7, 2019, and January 21, 2019. The announcements included information about the Des Plaines Oakton Street Metra Station project in the form of a project information packet (Figure 5-4). The packet outlined the goals of the project, ways to stay involved through the project website and social media, and the project schedule. This information packet was posted to the project website and distributed to local stakeholders. An announcement about the project was made on the City's cable channel, which provides 24/7 programming to the community and live web streaming of City Council meetings.

Project flyers marketing the community open house and the community ridership survey were distributed to Oakton Street business owners, the Des Plaines Chamber of Commerce, and were available at City Hall. These flyers were also posted in the warming shelters at the City's existing Metra stations in Downtown Des Plaines and at Cumberland.

Figure 5-4: Project Information Packet and Flyer

5.3 Community Input

Through the duration of the project, various channels were used to solicit input from area residents and local business owners and their employees. The following sections summarize the input received throughout the process.

5.3.1 Open House

A Community Open House was held on Wednesday, February 6, 2019, from 5-7pm at the Des Plaines Public Library. The open house was designed to present the station spacing and existing conditions findings, and to address many of the concerns heard through the outreach process. A Facebook event was created for the open house, which was shared through the project Facebook page, the project website, and the City of Des Plaines website and calendar. Branded email announcements were sent to 86 people who had submitted their email addresses through the project website, and flyers were hung in City of Des Plaines buildings and Oakton Street businesses.

Figure 5-5: Photos from Community Open House

Thirty-three people signed in at the Community Open House, though an estimated 45-50 people were thought to have attended throughout the evening. Staff members from the consultant team and the City of Des Plaines walked attendees through the various stations and answered questions as they came up. Many area residents were concerned about how the station would impact traffic on Oakton Street, and where parking for the station would be located. Gate downtimes impacting Oakton Street were

discussed, as well as the impact these gate downtimes would potentially have on the nearby fire station (see *7.3 Traffic Impacts* for the technical analysis on this topic).

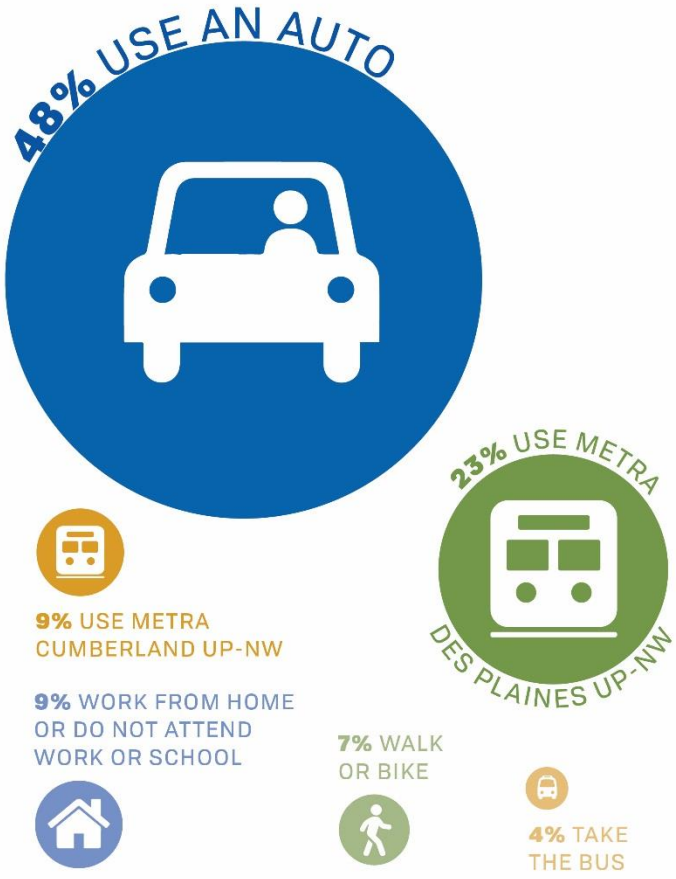
Through exercises designed to gain community input, community members described the main benefits of a potential Metra station at Oakton Street as improved transit options for nearby residents, and an alternative to UP-NW service (i.e., access to Union Station instead of Ogilvie in downtown Chicago). The main concerns noted about a station at this location were the potential for increased congestion on Oakton due to increased gate downtimes, and potential neighborhood impacts—such as noise pollution and Metra riders parking on residential streets. Ideas to address noise pollution to adjacent neighborhoods were discussed, including building a potential sound barrier.

While some were concerned about the impact that a train station and new development would have on their community, others were enthusiastic and described the potential station as a bold idea that would bring needed energy and attention to the Oakton Street area.

5.3.2 Community Ridership Survey

A community ridership survey was designed to gather input from potential users of the proposed Oakton station. Survey questions were strategically written to provide insight into the transportation choices made by potential station riders. The survey was distributed at the Community Open House on February 6, 2019, and available online through Survey Monkey, an online survey resource.

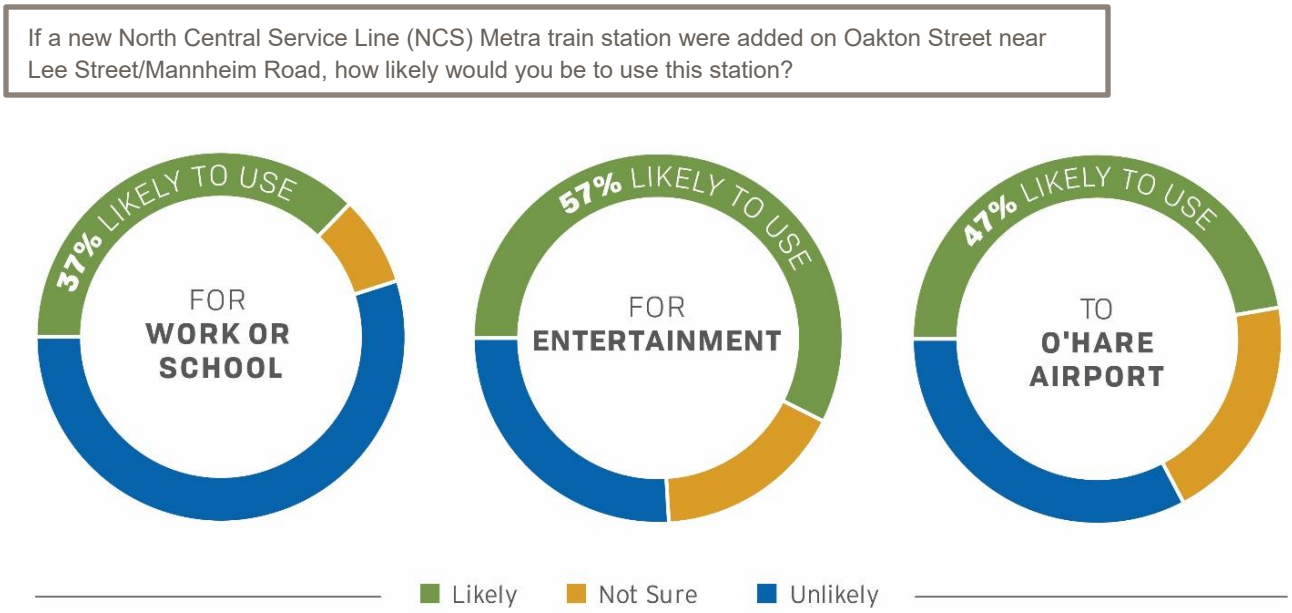
The survey was shared via the project website, project Facebook page, the City's website and newsletters, and marketed to existing Metra riders through flyers in the station area. The survey was opened to the public in January 2019 and closed in March 2019. In that time, a total of **56 responses** were collected, including 19 from the Community Open House. Key findings from the survey are outlined below.



When asked how respondents typically travel from their home to work or school, 48% reported using a car, and 31% reported using either the Des Plaines or Cumberland UP-NW Metra Stations, with the majority of Metra riders using the Des Plaines UP-NW station. These results are likely influenced by the fact that the survey was advertised at Metra stations. An additional 9% of survey respondents either work from home or do not attend work or school, 7% walk or bike to work or school, and 4% take the bus.

Next, survey respondents were asked how likely they were to use the proposed Oakton station for different trip purposes. The most likely use indicated by survey responses is for entertainment purposes—57% of respondents reported being likely to use a station at this location for that purpose, with 17% not sure and 26% unlikely. Using the station to access O'Hare Airport is the next most likely use, with 47% likely to use the station for that purpose. Thirty-seven percent of survey respondents indicated they are likely to use the station to access work or school.

Figure 5-7: Survey Question 2



When participants were asked how they would reach the Oakton station if they were to use it, 43% reported that they would walk to the station—suggesting that many survey respondents live within a short distance of the proposed station location. Accessing the station via car was the next most common response, with 18% indicating they would drive and park, 16% indicating they would be dropped off, and 4% indicating they would carpool or use rideshare services such as Uber or Lyft. Twelve percent of respondents would bike to the station, and seven per cent would use Pace bus.

Figure 5-8: Survey Question 3

Figure 5-9: Survey Question 4 (Home)

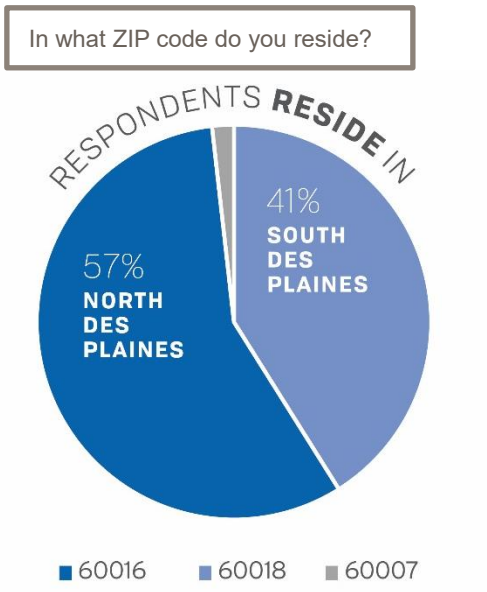
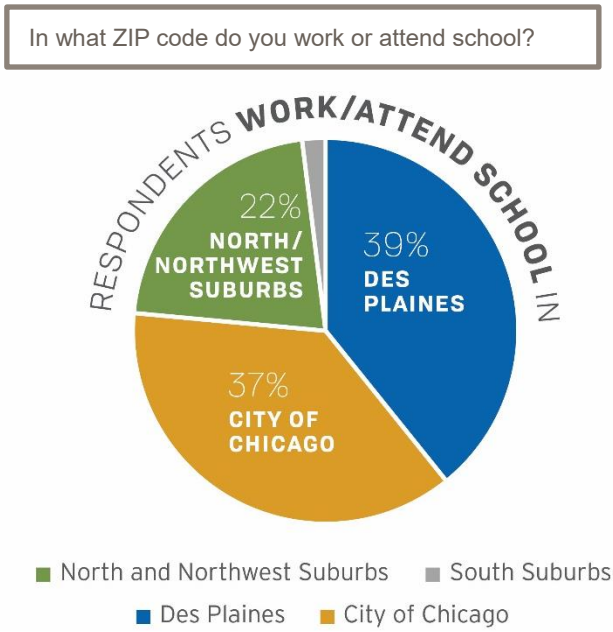


Figure 5-10: Survey Question 4 (Work/School)



The ridership survey went on to request the ZIP code where respondents live and where they work or attend school. The vast majority (98%) of respondents live in Des Plaines. North Des Plaines (zip code 60016) is home to 57% of respondents, while 41% live in south Des Plaines, where the proposed station is located (zip code 60018).

Interestingly, 39% of respondents work or attend school in Des Plaines, and another 22% do so in the North/Northwest Suburbs. These results may account the findings in survey question 3 (Figure 5-8)—if survey respondents work/attend school in Des Plaines or the surrounding suburbs, they would be more likely to use the station for entertainment or to access O'Hare Airport, as opposed to using the station to access work/school.

The final survey question was an open-ended response giving community members space to voice their general support, concerns and questions. The majority (54%) of these comments were positive, with 7% of the comments neutral and 39% of the comments negative. Positive comments focused on the benefits the station could give to the area as a whole, as well as support for additional

Figure 5-11: Survey Question 5

Do you have any general comments concerning a potential new Metra station in this location?

ADDITIONAL COMMENTS

"Think big! Incorporate residences and retail into the plan, do not stop at just a platform and shelter. This is a wonderful opportunity to transform an entire neighborhood."

"We have too many trains in Des Plaines. Adding another one will annoy everyone even more while commuting."

"I think the station is a great idea. I'm sure there will be the usual "NIMBY" complaints and complaints from people who dont want anything to interfere with their drive. But we need more development that will get people out of their autos and relieve gridlock and help the environment. I think the station will help nearby property values and make the city a bit more walkable. I would hope that there be more focus on public-transit and walkable friendly development around the station."

"How will you handle parking? How will you manage traffic? How will you keep cars out of neighborhoods?"

"Des Plaines needs this, please do this!"

transit options for residents. The negative comments expressed concern about traffic impacts on Oakton Street, as well as concerns about the proximity to the fire station. The majority of the neutral comments were supportive only if adequate parking were available, and included comments about other improvements that should be made to the station area and to nearby Metra stations.

5.3.3 Website Response

The project website includes a contact section for page visitors to submit questions and concerns. Open-ended responses included notes from those in support of the station and those opposed. Below is a sampling of responses received:

> *"A nice idea. Drawback is Oakton traffic which is already horrendous especially at rush hour. Need to restore second traffic lane each direction from tracks to River Rd. Provide more off-street parking for those businesses benefitting with the existing single lane configuration."*

> *"I'm a neighbor and haven't heard of this project until today from a friend. The last thing we need in Des Plaines is another delay to traffic on Oakton. The majority of residents don't work in the City of Chicago and don't require additional unnecessary transportation. The current Metra station on Miner Street is ample to serve the community."*

> *"I am very happy to hear about potential new station."*

5.3.4 Stakeholder Interviews

The City of Des Plaines arranged meetings with a number of stakeholders with interests in the station area, including local businesses and organizations, area residents, and local developers. A series of meetings were conducted over four days. The following key themes emerged from these discussions.

5.3.4.1 Impact on Oakton Street District

Conversations with Oakton Street business owners revealed universal support for the station. Business owners see a train station at Oakton as a catalyst for economic development in the area that could serve as a gateway to the Oakton Street business district. While business owners and residents expressed disappointment with what some described as a 'run-down' look of the corridor, they also described a good energy and a bright future for the district. New businesses are opening on Oakton Street, and business owners were hopeful that the corridor would experience a renaissance and become a second downtown for the City. It was discussed that the City recently stepped up its efforts on Oakton Street, with improvements in street cleaning, lights, and banners, as well as economic development grants for businesses on the corridor.

Traffic and safety issues on Oakton Street came up in many conversations. Some businesses see traffic congestion as a benefit, as it forces drivers to slow down and see local businesses they might otherwise speed past. However, many business owners and residents expressed dissatisfaction with the back-up that occurs on Oakton when the gates are down at the rail crossing, particularly for freight trains. Traffic speeds on Oakton were characterized as an issue, particularly in regard to street parking,

which many described as feeling unsafe. For some Oakton Street business owners, street parking is the only parking available to their customers.

Though many businesses indicated that their clientele were local, stakeholders see very little foot traffic on Oakton, likely due to traffic speeds and uneven sidewalks, as well as businesses such as auto body shops that do not draw pedestrian activity. The foot traffic that does occur on Oakton was characterized as mainly students who attend school nearby.

5.3.4.2 Development Potential

Local developers see potential for redevelopment in the area surrounding Oakton Street and Mannheim Road, though there are hesitations from current property owners. The shopping center adjacent to the proposed Metra station has substantial vacancies, including 10,000 square feet of contiguous vacant retail space. A new Metra station is seen as a potential aid to filling vacant retail, though connectivity between retail establishments and the station was described as a challenge. Infill development at this site could be an issue for the visibility of existing businesses, such as Butera Markets.

While infill may be a challenge, developers described the addition of an Oakton Station as creating real potential for residential and mixed-use development within a transit-oriented development (TOD) corridor. The plans for a Pace Pulse stop in the area were also noted as beneficial, though not as much of a driver of new development as a potential Metra station. The location of the area—close to O'Hare Airport as well as downtown Des Plaines and Oakton Street businesses—is seen as an asset for redevelopment. Developers expected that any residential development would likely focus on one-bedroom to two-bedroom units, with a handful of studios and three-bedrooms. Potential new residential development in the area was characterized as likely to be at a lower price point in comparison to recent developments in Downtown Des Plaines, due to the character of the surrounding area.

Developers were clear that new residential and mixed-use development would likely depend on commitments from the City to improve the appearance and walkability of the station area. Though the area has potential, TOD projects were described as most successful when located in areas that are enjoyable to walk around. Streetscape improvements to make Oakton Street and Mannheim Road more attractive and more pedestrian-friendly would be needed for redevelopment around the station area to thrive.

5.3.4.3 Connectivity & Quality of Life

Many residents and business owners expressed concern about the number of accessible crossings over the NCS tracks. Additional crossings at Forest Avenue or Lincoln Avenue would better connect Metra riders to local businesses. These connections were also discussed with residents in relation to safe routes for cyclists to access the Des Plaines River Trail, as current crossings in the area exist only at Oakton Street and north on Algonquin Road.

While some residents and business owners recognize that a new Metra station would increase property values in the surrounding area, others expressed concern that a Metra station could bring in crime from neighboring communities. The impacts on air quality were also discussed, with some residents concerned that trains stopping at the station would increase diesel emissions, and others excited by the improvements to air quality that could come from reducing the number of cars on the road. Many residents and business owners saw the potential for an Oakton station to improve the quality of life in the area by providing additional transportation options for area residents and employees.

5.4 Public Outreach Conclusions

The community outreach conducted as a part of the Des Plaines Oakton Metra Station Feasibility Study revealed several key findings:

- There is general support and excitement for improvements to the Oakton Street business district that a new Metra station may bring. This area has good bones but is seen as in need of investment—both private and public.
- For the proposed Oakton station area to be desirable for TOD, improved pedestrian and bike infrastructure as well as beautification/streetscape improvement efforts are needed.
- Survey results show general support for a proposed Des Plaines Oakton Street Metra Station. Though these results indicate higher demand for the train as an amenity to access entertainment, events, and O'Hare airport, the survey counts are not high enough to determine if these preferences are truly representative.
- The biggest concern among community members is the impact on traffic on Oakton Street. While this feasibility study examines the impacts that a Metra station would have on traffic as well as changes in railroad crossing gate downtimes, it does not include a full analysis of how gate downtimes or potential new development would impact local traffic. Given that traffic on Oakton Street is already an issue, additional analysis into how local traffic patterns can be improved would be beneficial and could ease community concerns. Local traffic and parking management efforts will also play an important role in mitigating issues.
- There are many misconceptions about potential impacts of a Metra Station on the adjacent neighborhood, including increased crime, lowed property values, and air quality conditions. While aspects of this feasibility study can address these at a high level, the City will need to continue its educational and engagement efforts to ensure that community dialogues are fact-based and productive as plans move forward.

6. Travel Demand

6.1 Introduction

This chapter addresses the question of potential travel demand at the proposed Oakton station and compatibility with railroad operations, both passenger and freight. It covers the following topics:

- Summary of the possible schedule of NCS service including a Des Plaines station
- A general discussion of station demand, and methodologies to predict boardings for a Des Plaines Station, including demand to use the station to access O'Hare Airport
- Results of the application of the FTA Simplified Trips-On-Project (STOPS) model
- Results of the application of a regression equation using existing Metra station data
- Conclusions regarding station area demand, and how it compares with other Metra stations
- Analysis of mode of access and egress demand, and the need to design station elements to address this demand
- The impact of a new station on current NCS ridership
- Assessment of the operational impacts of the Des Plaines Station on Metra and freight service

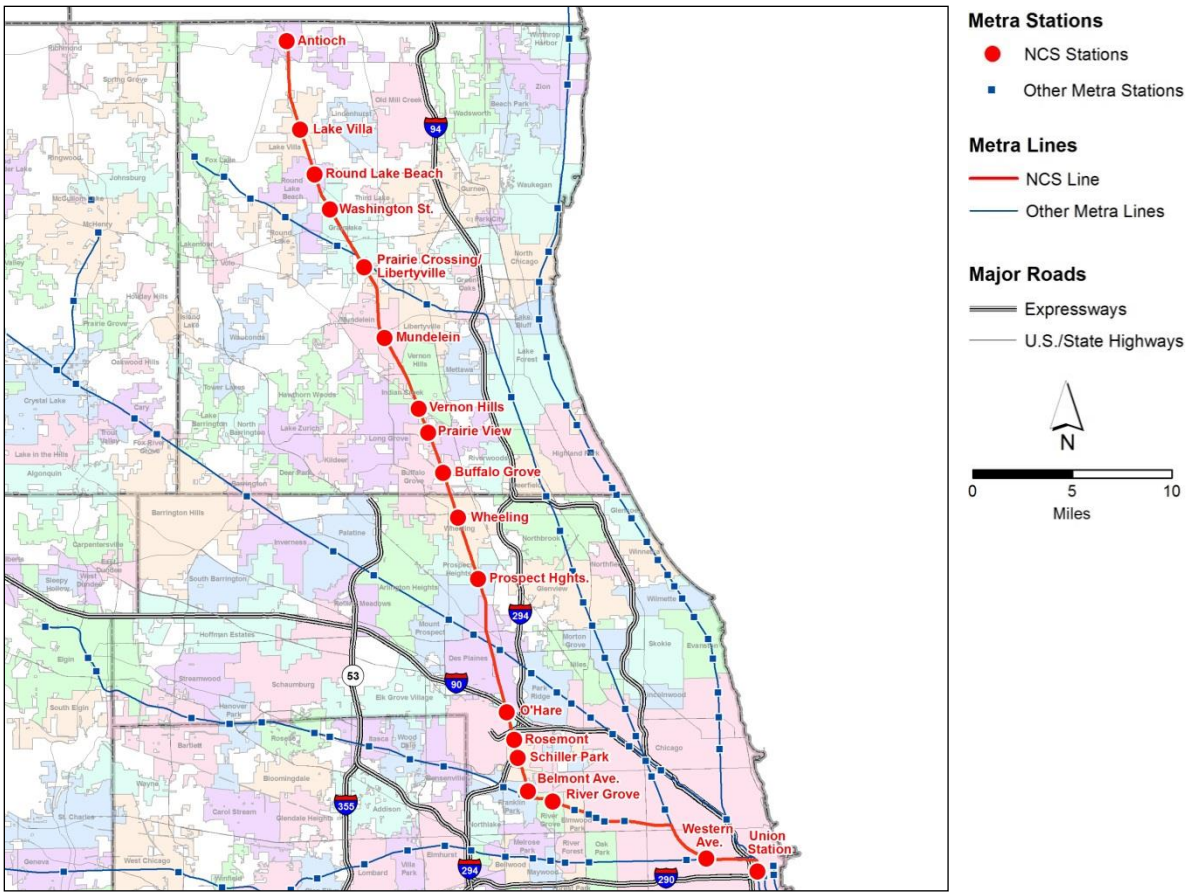
6.2 NCS Line Background

The NCS Line is one of eleven lines of the Metra network. The Metra system is configured as a hub-and-spoke system, with the hub in downtown Chicago. The NCS Line extends 52.8 miles north-northwest from Chicago's Union Station (CUS) to Antioch, near the Illinois-Wisconsin state line. A map of the NCS is provided on Figure 6-1.

Metra initiated the NCS in August 1996, the first new commuter rail line in the region in 70 years. The line began with 13 stations served by ten weekday trains. In January 2006, a major upgrade was completed that involved four new stations, added double track along the route, and ten additional trains operated per weekday. Prior to the NCS, the line was primarily used for freight, with limited intercity service ending in 1965.

NCS trains are operated and maintained by Metra. Rolling stock is stored overnight at a yard in Antioch and midday at the Western Avenue Yard in Chicago; vehicle maintenance is performed at Western Avenue facility. Metra use of the CN Waukesha Subdivision tracks is governed by a trackage rights agreement between Metra and CN. CN maintains the tracks, signals, and rights-of-way of their portion of the NCS route (i.e., Antioch to Junction B-12).

Figure 6-1: NCS Map



SOURCE: Metra

The NCS operates over four distinct segments, as shown on Table 6-1. Most of the NCS route has two or more tracks, which allows the operation of higher service levels. However, over seven miles of the CN segment is single track, which can constrain train operational throughput.

Table 6-1: NCS Route by Owner Segment, Miles by Number of Tracks

Segment	Route Miles	1 Track	2 Tracks	3 Tracks	> 3 Tracks	From	To
CN	40.1	7.2	32.9			Antioch	Junction B-12
MD-W	7.3			7.3		Junction B-12	Junction A-5
MD (N & W)	5.0			5.0		Junction A-5	Randolph Street
Amtrak	0.4				0.4	Randolph Street	CUS Bumping Post
Total	**52.8**	**7.2**	**32.9**	**12.3**	**0.4**	**Antioch**	**CUS Bumping Post**

The NCS schedule (effective February 5, 2018) includes ten trains in each direction, operating weekdays only. As will be referenced in the discussion of a proposed NCS schedule below, Inbound Train 120 departs Antioch at 7:02 PM, making stops at each station to Prairie Crossing Station, and then diverts to the Milwaukee North Line (MD-N), arriving at Chicago Union Station at 8:18 PM. The Chicago Metropolitan Agency for Planning (CMAP) reported that CN operated between 13 and 24 freight trains per day on the section of the route north of the Leighton Junction in Mundelein. This

junction is with the former Elgin, Joliet and Eastern (EJ&E), which was acquired by CN in 2009. South of Leighton, CMAP reported that CN operated between 7 and 12 freight trains per day in 2011. Many CN trains that originate from points north on the Waukesha Subdivision line divert to the former EJ&E route to avoid train congestion in Chicago.

6.3 Proposed Service

The evaluation of the proposed Des Plaines Oakton Street Station will be based on the NCS timetable that incorporates stops of existing trains at the proposed Oakton station. In addition, other transit investments that are in development and could affect the potential demand of a new Des Plaines station are highlighted.

6.3.1 Proposed NCS Schedule

As described in *Chapter 2: Station Spacing and Site Selection*, an evaluation of alternative station sites recommended the proposed station location at Oakton Street (milepost 19.2, the distance to CUS). The site is 4.8 miles south of the Prospect Heights Station and 2.1 miles north of the O'Hare Transfer Station.

The development of a schedule that includes service to the proposed Oakton station assumed that travel time for trains serving the station would increase two minutes to accommodate the time to deaccelerate, board/alight passengers, and reaccelerate. In preparing a draft timetable, it was assumed that current times at Union Station would not change due to the very tight slots into and out of this terminal. Thus, inbound departure times at stations Antioch to Prospect Heights were shifted two minutes earlier to preserve current Union Station arrival times. Outbound trains were advanced two minutes later for stations Prospect Heights to Antioch. Since stations between Antioch and O'Hare Transfer are served by all NCS trains except for Inbound Train 120, it was assumed that the Oakton station would follow the same pattern and be served by all NCS trains. Table 6-2 presents the number of NCS trains by service period.

Table 6-2: Weekday Trains

	Inbound		Outbound		Total	
Service Period*	NCS	Oakton	NCS	Oakton	NCS	Oakton
AM Peak	5	5	2	2	**7**	**7**
Midday	2	2	2	2	**4**	**4**
PM Peak	2	2	4	4	**6**	**6**
Evening	1	0	2	2	**3**	**2**
Total	**10**	**9**	**10**	**10**	**20**	**19**

*Service Periods (based on downtown terminal time): AM Peak-Start of service to 9:15 AM; Midday-9:16 AM to 3:29 PM; PM Peak-3:30 PM to 6:45 PM; Evening-6:46 PM to end of service.

The range in travel times between the proposed Oakton station and Union Station is 36 to 44 minutes for inbound trains, and 35 to 38 minutes for outbound trains. Between Prospect Heights and Oakton, assumed run times range between eight and ten minutes; between Oakton and O'Hare Transfer, running times are generally at four minutes.

6.3.2 Related Transportation Improvements

Two projects may impact the viability of a Des Plaines Oakton station: the Pace Pulse Dempster Line and the extension of the O'Hare Airport Transit System (ATS).

6.3.2.1 Pulse Dempster Line

Pace's second Pulse line (after the Milwaukee Corridor) will operate on Dempster Street between Evanston and O'Hare Airport. The line will make connections with other Pace and CTA bus routes, the CTA Yellow and Purple lines, as well as to Metra's UP-N, UP-NW, and NCS (at the O'Hare Transfer Station as well as the potential Oakton station) rail lines. As shown on Figure 6-2, the Pulse Dempster Lee-Mannheim Station would be 0.2 miles west of the proposed Oakton Metra station.

Figure 6-2: Pulse Dempster Line – Lee-Mannheim/Oakton Station

SOURCE: Pace *Pulse Dempster Line Project Definition Report*, August 2016

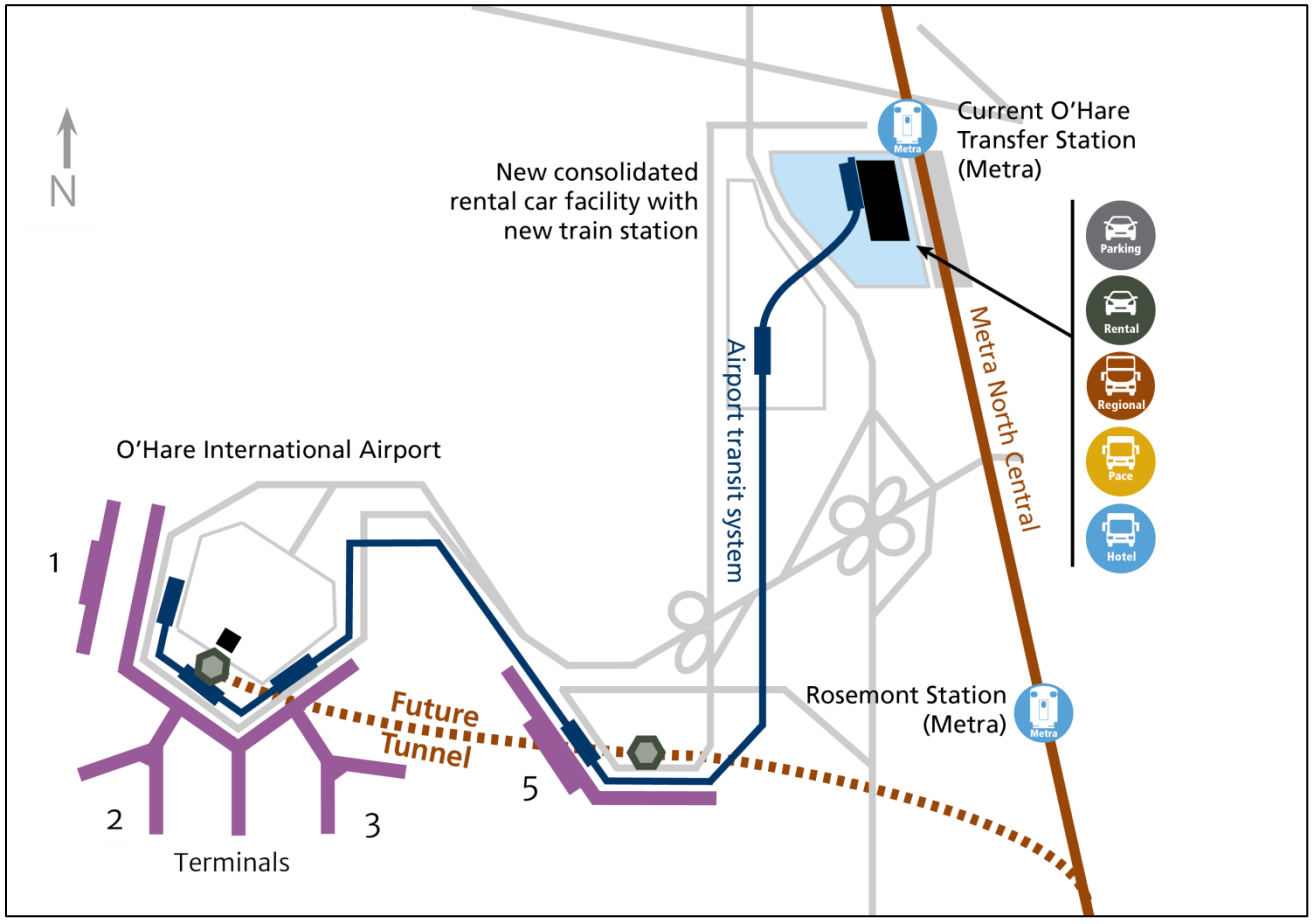
The Dempster Line would follow the existing Pace Route 250 but would include more frequent service and capital improvements involving stations with raised boarding platforms and transit signal priority (TSP). Running times are expected to be reduced by between 15% and 23%, with end-to-end running time savings of 16 minutes. At O'Hare Airport, the Dempster Line will have dedicated bus berth space near the Airport Transit System (ATS). As such, both the Dempster Line and NCS Oakton station would provide service between these two points. While NCS travel time is significantly faster (four minutes versus 12 minutes by Dempster Pulse), both services complement one another by providing additional origins and destinations. Construction of the Pulse Dempster Line is expected to begin in 2020.

6.3.2.2 O'Hare Airport Transit System (ATS) Extension

The O'Hare Multi-Modal Facility (MMF) (previously known as the Consolidated Rental Car Facility) was completed in 2018 and connects the airport's ground transportation operations in one central access point. The 2.5 million square-foot MMF houses all airport rental car operations and includes a public economy parking lot (Lot F). This facility is in the northeast corner of the airport near Zemke Boulevard and Mannheim Road and is easily accessible to the NCS O'Hare Transfer Station. It is important to note that the ATS will be extended to the facility.

The ATS—or people mover—is being modernized and extended, and is expected to be fully operational for the 2019-2010 holiday season. Major upgrades to the 25-year-old system include a larger fleet of cars and other enhancements to double capacity and provide direct and reliable service to and from the terminals at O'Hare. The upgraded system also includes a new station to connect passengers to the MMF. Proximity to the NCS Station will mean the NCS riders will not be required to use a shuttle bus to access the ATS terminal, which has been the case since the NCS opened in 1996. Figure 6-3 illustrates the ATS routing.

Figure 6-3: O'Hare Airport Transit System Map



SOURCE: O'Hare International Airport O'Hare, Chicago Union Station Rail transport.

6.4 Travel Demand

Three methodologies were used to gauge potential use of the proposed Oakton station.

- STOPS Model – Ridership was estimated using the Federal Transit Administration (FTA) Simplified Trips-on-Project Software (STOPS) model. A version of STOPS that was adapted to the Chicago metropolitan area by the Regional Transportation Authority (RTA) was used.
- Regression Model – This tool built on work developed for the Metra Station Optimization study and involved expressing a statistical equation that correlated characteristics of Metra stations to the level of reported boardings.
- O'Hare Air Traveler Market – The potential market of riders from the study station area who connect to O'Hare Airport for air travel trips was assessed using survey data.

6.4.1 STOPS Model

The FTA developed STOPS for project sponsors to evaluate and rate proposed major transit projects. The model is fundamentally a conventional "4-step" model that considers zone-to-zone travel markets, uses a conventional mode choice model to predict zone-to-zone transit travel, and assigns trips to fixed guideways in the transit network. The model uses worker flows (i.e., residence and work locations) from the Census Transportation Planning Package (CTPP). To represent the transit system in the model, data from the General Transit Feed Specification (GTFS) that are available from local transit providers are used. It also relies on the regional travel model for estimates of roadway travel times and distances.

The version of the model used for the Oakton station forecasts was obtained from the RTA, who led an effort to establish a consistent set of inputs to represent a "base case" scenario within the STOPS environment for the northeastern Illinois RTA region. From this base scenario, build and no-build ridership forecast scenarios were prepared (i.e., scenarios with and without an Oakton station). RTA's objective was to allow transit operators, planners, and advocacy groups to explore transit improvements in a manner that produces reliable and comparable estimates across the Chicago region.

6.4.1.1 STOPS Model Inputs

Inputs to the model include service and socio-economic levels.

Service

Service inputs were for two points in time, including base year (2015) and future year (2050). In addition, service assumptions were used in modeling a No-Build alternative (without Oakton station) and a Build alternative (with Oakton station) applications of STOPS. The following shows the combinations of services assumed.

2015 without NCS Oakton Station

- Metra schedules in effect in 2018
- Pace and CTA services
- O'Hare Airport Transit System (ATC) service in effect in 2018
- O'Hare Shuttle Buses serving the NCS O'Hare Transfer Station

2015 with NCS Oakton Station

- NCS schedule effective February 5, 2018, including stops at the proposed Oakton station
- Other Metra line schedules in effect in 2018
- Pace and CTA services
- O'Hare Shuttle Buses serving the NCS O'Hare Transfer Station

2050 without NCS Oakton Station

- Metra schedules in effect in 2018
- Pace and CTA services
- Pace Pulse Dempster Line
- O'Hare ATS service extended to Multi-Modal facility, opening in fall 2019

2050 with NCS Oakton Station

- NCS schedule effective February 5, 2018, including stops at the proposed Oakton station
- Other Metra schedules in effect in 2018
- Pace and CTA services
- Pace Pulse Dempster Line
- O'Hare ATS service extended to Multi-Modal facility, opening in fall 2019

Socio-Economics

Another key model input is current and future socio-economic data. The future condition was based on CMAP's regionally adopted 2050 socio-economic forecasts. Travel analysis zones (TAZ) used in the model application covering the one-half mile Oakton station area are shown on Figure 6-4.

Figure 6-4: TAZs 490, 491, 496, 497

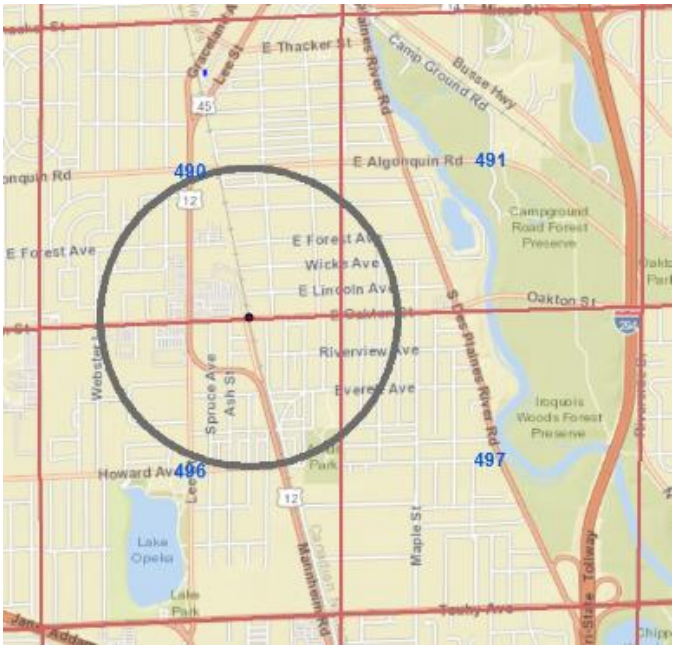


Table 6-3 compares CMAP 2050 population and employment forecasts with 2015 figures for each TAZ near the Oakton station. While CMAP forecasts show growth in the analysis zones covered by the Oakton station area, as is discussed in *Chapter 4: Market Assessment,* these increases may be conservative, especially if the Oakton station becomes a reality.

Table 6-3: 2015 & 2050 Socio-Economic Data by TAZ

		490	491	496	497
	Sector	northwest	northeast	southwest	southeast
	Acres	652	652	650	644
Population	2015	6,730	3,088	6,176	3,337
	2050	8,002	3,709	7,302	3,913
	Change	1,272	621	1,126	576
	% Change	19%	20%	18%	17%
Employment	2015	2,324	1,434	3,965	2,602
	2050	2,824	1,614	4,358	2,939
	Change	500	180	393	337
	% Change	22%	13%	10%	13%

6.4.1.2 STOPS Model Results

The model output from STOPS is estimated weekday boardings, which are available at the station level. Results for nearby NCS and UP-NW line stations (i.e., Prospect Heights, Cumberland, Des Plaines, and Dee Road) are especially relevant to assess if the demand for the Oakton station will be riders new to Metra or current riders drawn from existing stations. The Oakton station would be competing with each these stations to attract area residents. Conversely, the NCS O'Hare Transfer Station serves predominately destination riders, and would not directly compete for proposed Oakton station users.

The model results presented on Table 6-4 indicate that the Base Year No-Build overstated estimates for all four of the nearby stations shown. Travel demand models are known to be less reliable in predicting ridership at the individual station level as compared to the route or segment level. In the Base Year Build run (2015 model run with the proposed Oakton station), the STOPS model estimates 580 boardings per day at Oakton, with a combined ridership reduction of 7% (249 boardings) at the four nearby stations. Prospect Heights showed the largest fall-off at -29% (-146 boardings). Ridership in 2050 under the CMAP's socio-economic forecast revealed 658 boardings per weekday at the Oakton Station. The results also indicate a net growth in 2050 boardings for the five stations of 375 compared to the 2050 No-Build (4,246 versus 3,871).

Table 6-4: Des Plaines Oakton Station Weekday Boarding Forecasts - STOPS

			Base Year (2015)		Forecast Year (2050)	
Line	Station	Observed Boardings	Modeled No-Build	Modeled Build	Modeled No-Build	Modeled Build
NCS	**Oakton**	**n/a**	**--**	**580**	**--**	**658**
NCS	Prospect Heights	226	496	350	567	397
UPNW	Cumberland	455	606	585	692	668
UPNW	Des Plaines	1,142	1,510	1,454	1,771	1,712
UPNW	Dee Road	515	734	708	841	811
	Total	**2,338**	**3,346**	**3,677**	**3,871**	**4,246**
	Net Change			331		375

6.4.2 Metra Ridership Regression Model

This model was created as part of the Metra Station Optimization Study to evaluate whether Metra stations are achieving an expected level of performance based on station characteristics and service levels. The regression equation was developed using data gathered for the Optimization Study. The model was adapted from the statistical approach outlined in *Sketch Models to Forecast Commuter and Light Rail Ridership: Update to TCRP Report 16* (2006). The dependent variable was weekday boardings, and the independent variables for each station that were used in the model were:

- population in non-overlapping market sheds,
- parking capacity (in spaces),
- average weighted travel time to downtown Chicago (in minutes),
- average weighted speed to downtown (MPH),
- midday headway (time between trips in minutes),
- zero-car household share in half-mile station area,
- jobs in half-mile station area,
- distance (in miles) to nearest station,
- distance (in miles) to nearest CTA rapid transit station,
- total inbound trains stopping at station, and
- number of downtown Chicago workers living in origin-defined market shed.

Data for the potential Oakton station and nearby NCS and UP-NW stations were inputted into the regression equation, which yielded the boarding results on Table 6-5. The original market shed numbers for nearby NCS and UP-NW stations were recalculated to match the new station market shed boundaries as developed in the Chapter 3 *Existing Conditions*. Table 6-5 shows that the regression equation estimated 2015 No-Build boardings for existing stations were higher than observed for Prospect Heights, Cumberland and Dee Road, and lower for Des Plaines, yielding a net underestimation of 201 boardings across the four stations.

For the Build condition, the Oakton station would attract 281 estimated boardings for the base year and 309 for the forecast year 2050 based on CMAP socio-economic forecasts. For the five stations combined, 2015 boardings were estimated at 190 higher for the Build versus the No-Build; in 2050, this difference is 247 boardings.

Table 6-5: Des Plaines Oakton Station Weekday Boarding Forecasts - Regression

			Base Year (2015)		Forecast Year (2050)	
Line	Station	Observed Boardings	Modeled No-Build	Modeled Build	Modeled No-Build	Modeled Build
NCS	**Oakton**	**n/a**	**--**	**281**	**--**	**309**
NCS	Prospect Heights	226	257	245	379	264
UPNW	Cumberland	455	675	648	833	710
UPNW	Des Plaines	1,142	707	659	609	694
UPNW	Dee Road	515	498	494	441	532
	Total	**2,338**	**2,137**	**2,327**	**2,262**	**2,509**
	Net Change			190		247

6.4.3 Comparison of STOPS and Regression Results

Table 6-6 compares the 2050 forecasted station boardings between STOPS and the regression equations. The results show that the STOPS model predicts higher ridership for the proposed Oakton station than was predicted from the regression approach. The average between both methods is also shown.

Table 6-6: Comparison of Oakton Station 2050 Boardings by Method

		No-Build			Build-CMAP		
Line	Station	Regress	STOPS	Avg.	Regress	STOPS	Avg.
NCS	**Oakton**	**--**	**--**	**--**	**309**	**658**	**484**
NCS	Prospect Heights	379	567	473	264	397	331
UP-NW	Cumberland	833	692	763	710	668	689
UP-NW	Des Plaines	609	1,771	1,190	694	1,712	1,203
UP-NW	Dee Road	441	841	641	532	811	672
	Total	**2,262**	**3,871**	**3,067**	**2,509**	**4,246**	**3,378**

Each method has certain strengths and weaknesses.

- The STOPS model is a standard, widely accepted model used for forecasting transit project ridership. However, there are limitations, including that as a sketch model, results are less precise at the station level. The STOPS model represents non-work trips less reliably than work trips, and public outreach efforts revealed significant levels of interest in Metra travel for entertainment and airport access purposes. Finally, future travel is based on existing travel patterns.
- The regression analysis is a simplified methodology that relies on comparable Metra station data. However, while Metra stations include common characteristics, there can be subtle differences that are not easily captured in a statistical analysis. Additionally, without actual origin data available (for a prospective station) to more precisely define the market shed, the model may be influenced by the estimated boundaries of the station's shed vis-à-vis neighboring stations.

Since each approach offers comparative advantages over the other, it is recommended that the average be used as the estimated boardings for the proposed Des Plaines Oakton station. The Metra Station Optimization study addressed station forecasts in a similar fashion, presenting both STOPS model and regression results. Table 6-7 summarizes the average 2050 boardings. The difference between the Build and No-Build is 312 boardings per day or 172 less than the Oakton station forecast. This amount represents future diversions from the current stations.

Table 6-7: Summary of 2050 Boardings (Average of STOPS & Regression Methods)

Line	Station	No-Build	Build	Difference	% Diff.
NCS	**Oakton**	**--**	**484**	**484**	**--**
NCS	Prospect Heights	473	331	-142	-30%
UPNW	Cumberland	763	689	-74	-10%
UPNW	Des Plaines	1,190	1,203	13	1%
UPNW	Dee Road	641	672	31	5%
	Total	**3,067**	**3,379**	**312**	**10%**

6.4.4 O'Hare Air Traveler Market

As noted previously, the NCS provides access to O'Hare Airport at the O'Hare Transfer Station, and the connection to the airport terminals will be improved with the extension of the ATS in late 2019. Since the STOPS model does not capture air passenger trips, a separate analysis of this market was completed. The primary data source was a survey of persons accessing O'Hare Airport in 2015 (*O'Hare Airport Access Study*, Chicago Transit Authority (CTA), 2015). This survey involved origin-destination and stated preference surveys of air passengers. A subset of survey responses with origins in the City of Des Plaines was obtained and served as the basis for the following analysis.

Respondents to the survey were obtained in the following ways:

- Intercepting passengers at O'Hare Airport
- Receiving an e-mail blast from United Airlines
- Air passengers on a CTA email list
- Airport employees from various sources

A total of 76 survey responses with origins in Des Plaines were received. Of this number, 63 were air passengers and 13 were employees at O'Hare. Since the STOPS modeling was assumed to capture work trips, the analysis focused on the 63 air passenger responses. Each survey record included an expansion factor to represent the total daily trips to O'Hare. Overall, the 63 Des Plaines air passengers surveyed represented an estimated 585 daily trips to O'Hare Airport. The survey also obtained the Des Plaines origin location for each respondent; this information was used to calculate the distance to the proposed Oakton station.

Tabulations of relevant results are presented on Table 6-8. Results for selected questions were cross-tabulated with distance to the Oakton station site, using two distance ranges (one mile or less, and more than one mile). Results are expressed as weighted daily trips to O'Hare. Key findings are summarized as follows:

- Nearly two-thirds reported their Des Plaines origin as home, or a friend or family member's home. The remaining third were originating from a work location or a hotel.
- Over two-thirds were flying to visit friends/ relatives or on vacation. Business travel accounted for 22%.
- The most frequently used travel modes to O'Hare were hotel courtesy vehicle or being dropped off (35%). Use of a courtesy bus would be difficult for NCS to compete with, give point-to-point travel and likelihood of no fare.
- One-third of respondents did not check a bag, while two-thirds checked one or more. Traveling with multiple bags could make use of an NCS train less convenient.
- About one-quarter of respondents initiated their trip from Des Plaines within one mile of the proposed Oakton station site. Given the comparative closeness of the City of Des Plaines to the Airport, it is felt that proximity to the station would be an important factor that air passengers would consider in choosing to use the NCS.

Table 6-8: Des Plaines Responses to O'Hare Airport Access Survey

	miles to Oakton Sta.			
	0.0 - 1.0	1.1 - 4.0	Total	Percent of Total
Origin Place Type				
Your home	58	124	182	31%
Friend's home	0	19	19	3%
Family member's home	26	151	177	30%
Place of employment	0	9	9	2%
A hotel	49	149	198	34%
Total	**133**	**452**	**585**	**100%**
Primary Purpose of Flight				
Business	35	91	126	22%
Convention/trade show	0	5	5	1%
Visit friends or relatives	23	48	71	12%
Vacation	55	276	331	57%
To school	20	0	20	3%
Other	0	32	32	5%
Total	**133**	**452**	**585**	**100%**
Primary Mode to O'Hare				
Drive or Ride, and Parked	0	28	28	5%
Dropped off	59	148	207	35%
Rental Car	18	44	62	11%
Taxi/ Limo	11	34	45	8%
Hotel/motel courtesy vehicle	31	189	220	38%
Rideshare (e.g., Uber, Lyft)	6	9	15	3%
Bus	8	0	8	1%
Total	**133**	**452**	**585**	**100%**
Number of Checked Bags				
None	38	162	200	34%
One	62	181	243	42%
Two	10	81	91	16%
Three	17	23	40	7%
Four or More	6	5	11	2%
Total	**133**	**452**	**585**	**100%**

While the survey information suggests that the potential air passenger market for the proposed Oakton station is 585 boardings per day, it is believed only a subset of this number would consider taking Metra from Oakton to O'Hare Airport. Factors that could affect use would include, for example, the availability of an on-demand courtesy bus, an origin not near the station, use of a rental car, or carrying more than one checked bag.

Table 6-9 arrays survey response weighted trips by distance to the Oakton station, number of bags checked, and mode of travel to the Airport. Travelers who were anticipated to consider use of the Oakton station included those who: 1) have origins with one mile of the Oakton station, 2) have no more than one checked bag, and 3) currently use a personal car, taxi/limo, rideshare, or bus to access the station.

This results in a potential 70 riders per day. Of these travelers, it was assumed that the station would attract 20%, or 14 boardings per day. The 20% rate was felt to a be a reasonable factor to apply to the estimated market of most-likely users of the service. A conservative assumption was made that this air traveler estimate, which was based on a survey conducted in 2015, would not grow in the future. This number would be added to the STOPS / Regression average (484), resulting in Oakton Station future boardings of 498.

Table 6-9: Estimated Oakton Station Use by Air Passengers

	0.0 - 1.0 miles		1.1 - 4.0 miles	
	0-1 Bag	2+ Bags	0-1 Bag	2+ Bags
Drive or Ride, and parked	**0**	0	28	0
Dropped off	**59**	0	127	21
Rental Car	18	0	19	25
Taxi/Limo	**11**	0	18	16
Hotel/motel courtesy vehicle	12	19	144	45
Rideshare (e.g., Uber, Lyft)	**0**	6	6	3
Bus	**0**	8	0	0
Total	100	33	342	110
Potential Oakton Station Users	**70**			
Estimated Oakton Station Users (20%)	**14**			

6.5 Station Access and Egress

A key factor in successful station performance is the provision of infrastructure and services to facilitate convenient access and egress for users. The STOPS model results can offer insight into how riders would access the station, as shown on Table 6-10. Note that these mode percentages from STOPS were applied to the estimated boardings presented in Section 6.4.3, and represents the average of the two ridership model outputs. In addition, the total boarding figure also include the O'Hare air travel passenger estimate from Section 6.4.4 The three modes are discussed below, along with another mode: bus service.

Table 6-10: Estimated 2050 Oakton Station Boardings by Access Mode

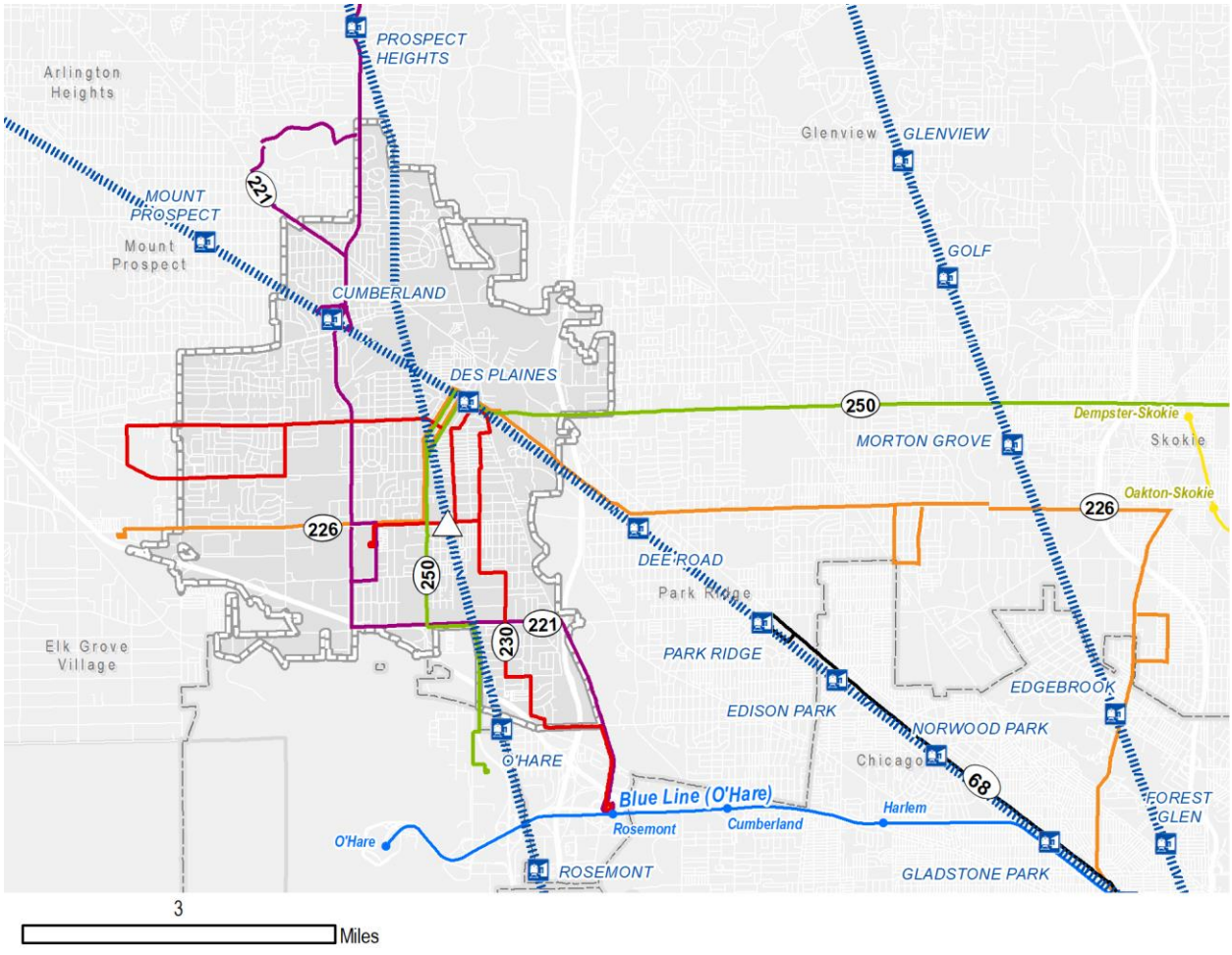
Access Mode	STOPS 2050 % Share of Boardings	Estimated 2050 Boardings
Walk	39%	197
Kiss-n-Ride	6%	29
Park-n-Ride	55%	272
Total	**100%**	**498**

6.5.1 Walk/Bus Modes

The STOPS model predicted that the walk mode would be used by an estimated 39% of the Oakton station passengers. Riders using a bicycle are included here, as are those arriving at the station area via bus and walking to the station (see Figure 6-5). Recommendations include the following:

- The station area generally has a complete sidewalk network; any identified gaps should be filled.
- Amenities and infrastructure for pedestrians and bicyclists within the station area should be identified and considered.
- The City has improved bicycle infrastructure, including the adoption of a citywide *Complete Streets Policy* in 2012 and ongoing route and trail enhancements. Re-development projects should include non-motorized enhancements.
- Provide enhanced pedestrian connectivity and wayfinding between the Oakton station and the Pace Pulse Dempster Line stops.
- Consider moving Pace Route 230 South Des Plaines southbound trips from White Street to Center Street and review connection times.

Figure 6-5: Existing Bus Routes Serving the Station Area



6.5.2 Kiss-n-Ride / Drop-Off

This access mode could be significantly more important than suggested by the STOPS modeling results (i.e., 6% share). Although the STOPS model indicated few passengers using this mode, this is a common way that Metra commuters access stations, accounting for 15% of riders based on the Metra 2016 Origin-Destination survey. There are a whole host of variations within this mode, including carpool, vanpool, transportation network company (TNC) / shared ride services (e.g., Uber, Lyft, Via), and taxi. Considering the 2050-time horizon, other emerging technologies may also prove feasible, including automated vehicles, carshare, dynamic carpools, and Mobility-as-a-Service (MaaS) systems. Vehicle accommodation for these types of services will need to be incorporated into the station's infrastructure, on both the east and west sides of station area. Physical space for these modes would be provided in the station parking areas on both sides of the railroad tracks.

6.5.3 Park-n-Ride

Driving and parking at stations is the most common means that Metra riders (like most suburban commuter rail passengers nationally) use to access stations, totaling 57% of all riders from the 2016 Origin-Destination survey. The STOPS modeling indicated a share of 55% of boardings, or 272. This would represent demand on a typical day, and variation by day-of-week and season should be addressed in the sizing the parking facilities to be constructed. As such, a design factor of 15% was assumed, which would translate to approximately 320 parking spaces needed by 2050. The preliminary station layout included about 120 spaces on the east side of the railway, and roughly 200 spaces on the west side. This split in capacity should be revisited in later phases of the station's development. The construction of parking can be phased, with opening-day capacity less than what is forecast to be required in 2050.

6.6 Train Operational Impacts

The introduction of an NCS station at Oakton could potentially have impacts on the following areas, which are discussed in this section:

- Current Metra NCS ridership
- Reliability of Metra service
- Freight operations

6.6.1 Travel Time Impacts to Current Metra Riders

Current NCS passengers who will be on trains that stop at the proposed Oakton station will see their travel times lengthened by approximately two minutes. Impacted riders are represented by passenger loads on inbound trains leaving Prospect Heights and loads on outbound trains leaving O'Hare Transfer. Table 6-11 indicates that 2,340 inbound passengers would be impacted based on Metra station counts taken in fall 2016. Outbound passengers impacted would total 2,250.

Table 6-11: NCS Passengers Impacted by Des Plaines Oakton Station

	Route Segment	Trains		Passenger Loads at Oakton	Total MD-N Passenger Trips
		Serving Oakton	Total		
IN	Antioch-Prospect Heights	9	10	2,340	2,755
OUT	CUS-O'Hare Transfer	10	10	2,250	2,583
	Total	19	20	4,590	5,338

SOURCE: Metra 2016 Boarding-Alighting Count.

The addition of two minutes to station travel time in the systemwide regression analysis reveals that estimated boardings could decline by 2.2% on affected trains. This could translate to 101 fewer weekday boardings per day, not including the gain in boardings at Oakton (i.e., 4,590 loads at Oakton multiplied by 2.2%).

Another way of assessing the larger impact of the Oakton station on demand is to review STOPS model results for the entire transit system. Table 6-12 reveals that the Metra NCS and UP-NW show decreases in boardings of 323 and 227, respectively. The MD-N revealed an increase of 1,111 trips in 2050, which was the result of added travel time for use of the NCS line. The net change in 2050 Metra boardings attributed to the Oakton station was an increase of 561 per weekday, factoring in the forecasted gain on the MD-N and declines for the NCS and UP-NW. CTA Blue Line shows a decline of 498 passengers. Estimated demand on the Pace Pulse Dempster Line is forecasted to increase by 526 passengers in 2050 if the Oakton station is built.

Table 6-12: Metra Line, CTA and Pace STOPS 2050 Boardings

Route	No-Build	Build	Diff.	No-Build	Build	Diff.
NCS	**8,735**	**8,412**	**-323**			
MD-North	28,742	29,853	1,111			
UP-Northwest	46,375	46,148	-227			
Sub-Total Metra				83,852	84,413	561
CTA Blue Line				199,237	198,739	-498
Pulse Dempster				1,737	2,263	526
Grand Total				**284,826**	**285,415**	**589**

6.6.2 Metra Service Impacts

As a way of assessing the impacts that a new Oakton station could have on Metra NCS operations, the 367 reported delays in 2018 were reviewed by cause. (Metra considers a train to be delayed if it reaches its destination six minutes or more after scheduled arrival.) As shown on Table 6-13, many reported delays would have no link to the introduction of a new NCS station in Des Plaines, including, for example, Mechanical Error, Obstruction/Debris, Human Error, or Weather. For the most common reason (Signal/Switch Failure at 16%), there are no switches in the immediate area of the proposed station site, and the functioning of signals for train control and roadway crossing protection would not be affected by an Oakton station. The level of Freight Interference would also not be expected to change with a new Des Plaines station, since much of the CN freight traffic occurs north of Leighton Junction in Mundelein, where CN freight trains shift to the former EJ&E line, as discussed in further

detail in Section 6.6.3 below. In summary, the proposed Oakton station would not negatively impact the quality of the Metra NCS service.

Metra operations east of Junction B-12 over the 3-track MD-W mainline to Chicago Union Station would not be expected to be impacted by a new NCS Des Plaines station at Oakton.

Table 6-13: 2018 NCS Train Delays by Cause

Cause of Delay	Delays	Percent
Signal/Switch Failure	91	25%
Freight Interference	82	22%
Mechanical Failure	45	12%
Obstruction/Debris	37	10%
Human Error	30	8%
Passenger Train Interference	18	5%
Weather	17	5%
Accident	13	4%
Passenger Loading	11	3%
Track Work	10	3%
Lift Deployment	6	2%
Sick, Injured, Unruly Passenger	4	1%
Other	3	1%
Total	**367**	**100%**

6.6.3 Freight Rail Impacts

As stated in Section 6.2, Metra use of the CN Waukesha Subdivision tracks is governed by a trackage rights agreement between Metra and CN. CN maintains the tracks, signals, and rights of way of their portion of the NCS route (i.e., Antioch-Junction B-12). The NCS trains share this CN-owned tracks with CN freight traffic. CMAP reported that CN operates approximately twice as many freight trains north of the Leighton Junction in Mundelein compared to south of Leighton. CN trains that originate from points north on the Waukesha Subdivision line divert to the former EJ&E route to avoid train congestion in Chicago. The additional two minutes of NCS train travel time would not be expected to affect CN's freight operation.

6.7 Transit Accessibility Impacts

Building on the existing conditions transit connectivity analysis described in *Section 3.7.6*, the GTFS feed for the proposed NCS schedule with service to the Oakton station was added to the existing transit network (as of November 2018) and destination service area and job accessibility analysis was carried out. This analysis helps to understand the geographical extent (and corresponding jobs) that could be reached using walk-access transit service from the Oakton station area, including the wait times needed to transfer between routes, if applicable.

The ability to reach large portions of central Chicago within 60 minutes by transit (as shown in Figure 6-7) yields much higher job accessibility. The opportunity to board a Metra train nearby, without needing to walk or take the bus to nearby UP-NW or NCS stations, dramatically increases the number of jobs accessible—from a maximum of 550,000 jobs to 940,000 jobs (Figure 6-6). The before-and-after 60-minute destination service areas for two AM departure times is illustrated spatially in the maps in Figure 6-7.

Figure 6-6: 2015 Jobs Accessible via Transit from Oakton (by AM departure time from Oakton/NCS crossing)

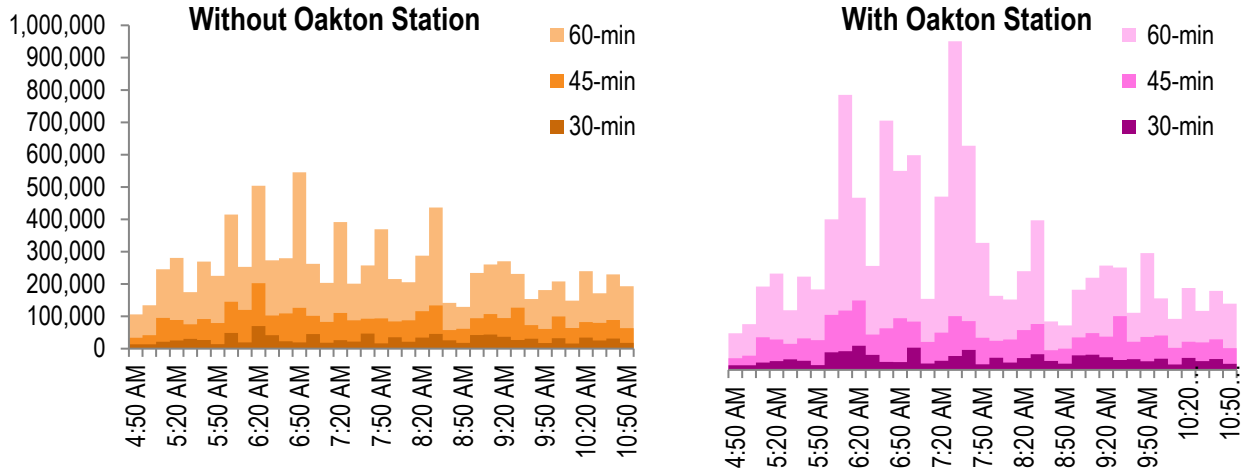
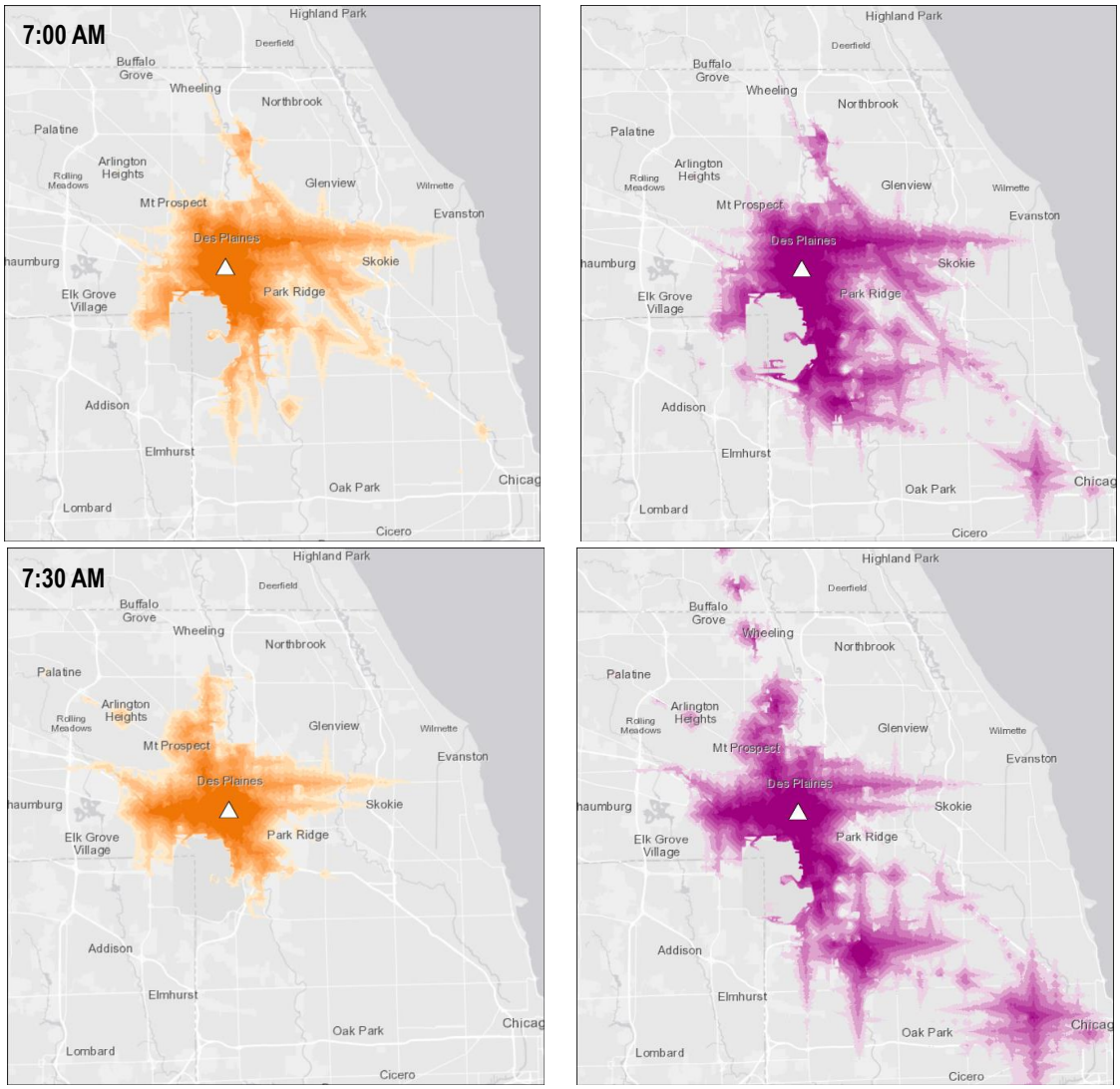


Figure 6-7: 60-minute Transit Service Areas from Oakton Site by Departure Time

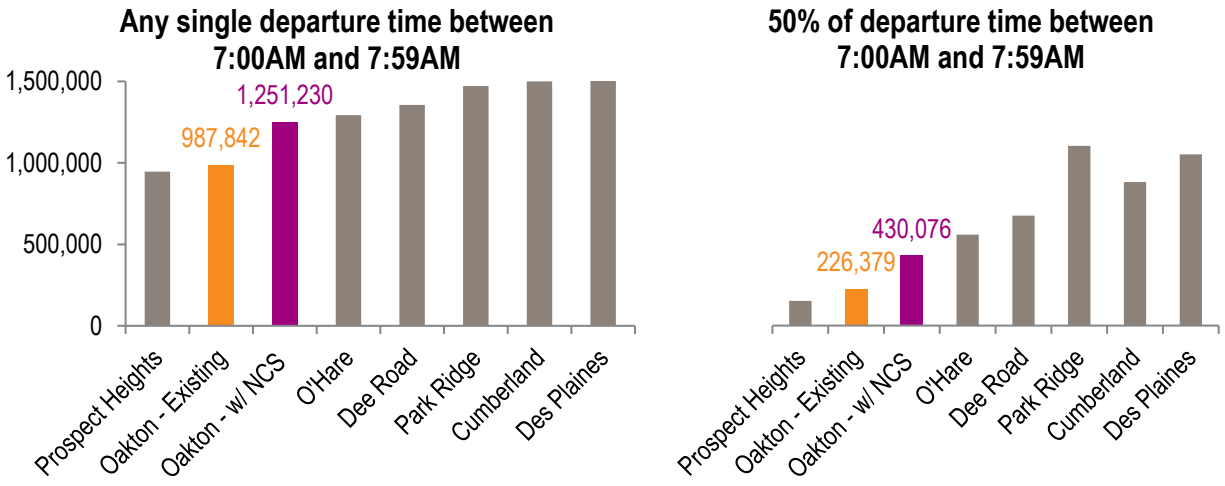


Data source: Metra, CTA, Pace GTFS data (November 2018)

For the purposes of further analyzing job accessibility by transit, the network was evaluated to determine the number of jobs accessible via a 60-minute or shorter transit trip for departure times ranging between 7:00 AM and 7:59 AM on a weekday morning. This analysis was carried out for the Oakton site (both with and without the NCS station) as well as nearby existing Metra stations. The goal is to reflect a broader range of accessibility, assuming commuters have a degree of flexibility in scheduling their start times to align with train schedules.

As shown in Figure 6-8, the Oakton site rises from 990,000 jobs to 1.25 million jobs accessible by transit (assuming at least one possible NCS departure time between 7:00 AM and 7:59 AM), an increase of 27 percent. Assuming that people need more flexibility in their schedules and wish to be able to reach their workplace within an hour for at least half of the possible departure times between 7AM and 8AM, the 225,000 jobs accessible without the proposed Oakton station increases to 430,000 jobs with the station—a near doubling in the number of jobs accessible. As noted previously, the difference between the two charts in Figure 6-8 reflects the significant impact of Metra service (relatively infrequent compared to CTA, but time-efficient in reaching the Central Business District).

Figure 6-8: Jobs Accessible via 60-minute transit/pedestrian trip (Nearby Stations)



7. Site Impacts

7.1 Introduction

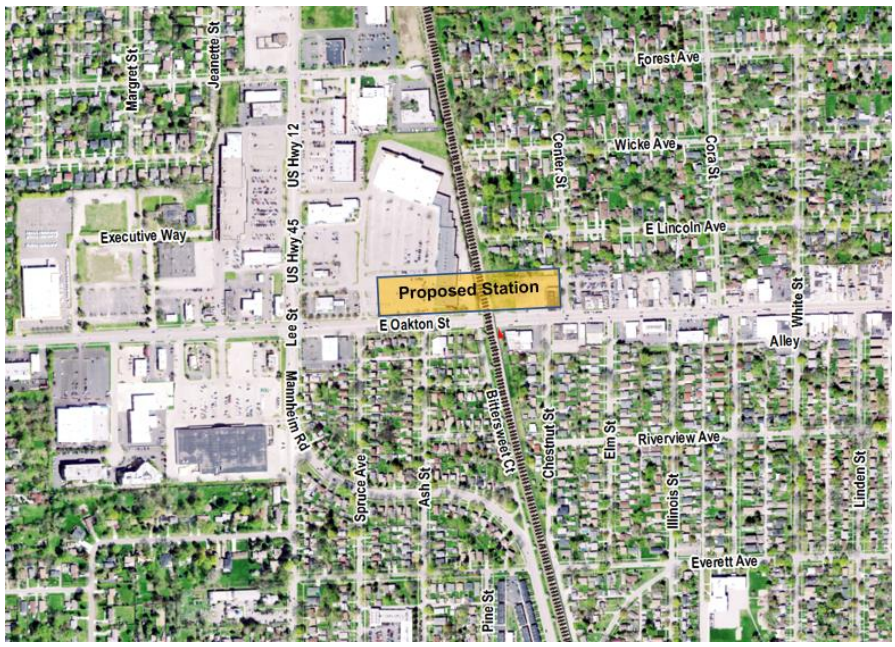
This chapter addresses impacts and costs of the proposed station, and covers the following areas:

- Defining the station and parking concept plans for the immediate station area, including general land use, building massing, and parking / transportation improvements.
- Traffic analysis of major roadways anticipated to be used by commuters to access the station and the potential impacts on the at-grade Oakton Street crossing due to longer gate down times.
- Stormwater impacts and need for stormwater control systems, using available data and performing a high-level analysis.
- Estimated capital costs for the proposed station and parking improvements, roadway improvements, and other ancillary investments associated with the station.
- Estimated operations and maintenance (O&M) costs to Metra for train operations and platform maintenance, and for the City or other entities to operate and maintain the station building, parking, and other improvements associated with the station.
- Estimated revenues that could be expected to be generated, including additional passenger fares for Metra and parking / vendor revenues that would accrue to the City or another entity.
- The identification of potential funding sources to build, operate, and maintain the station and parking facilities.

7.2 Station Concept Plans

The proposed location for the Oakton station location is the north side of Oakton (Figure 7-1).

Figure 7-1: Oakton Site Aerial



7.2.1 Station Site Constraints

Various existing features in the immediate station area will affect the design of the station improvements, including those identified on Figure 7-2. Descriptions of key issues for the letter-coded elements follow.

Figure 7-2: Proposed Oakton Station Site Constraints

A. **CN |** The railroad's right-of-way is generally 66-feet wide, and contains two mainline tracks through the station area.

B. **CN/Oakton Street Grade Crossing |** Protection devices include crossbucks, crossing gates, and cantilever mounted warning lights. Control system bungalow is in the northwest quadrant of the crossing. The photo on the right is the crossing looking west.

C. **ComEd |** A 40-foot ComEd right-of-way is adjacent to the east side of the CN. Poles for major transmission lines are shown in the photo at the right. It is believed that this right-of-way also includes a gas pipeline.

D. **Oakton Street |** Oakton is a 4-lane minor arterial that is under the jurisdiction of the City of Des Plaines through the station area (west of Mannheim Road it is an IDOT roadway).

E. **Vacant Restaurant Site |** The building and parking lot comprise one acre of land east of the NCS. Vehicle access to the restaurant parking was from Oakton and Center Streets from the east.

F. **Oaks Shopping Center |** This commercial center is mostly under single ownership. The principal business in the Center is the Butera Market at the north end of the site. The inline retail along the east side contains a mix of uses, including a former fitness center (southernmost unit, photo below), Goodwill donation center, and assorted smaller businesses. A number of the store fronts in the strip are vacant. The back side of this strip of stores includes a service drive (between the CN and the stores), providing delivery access to Goodwill and Butera. There may be interest in redeveloping some of the uses in the Center, which could be an opportunity for development that is more supportive of a train station.

7.2.2 Station Elements

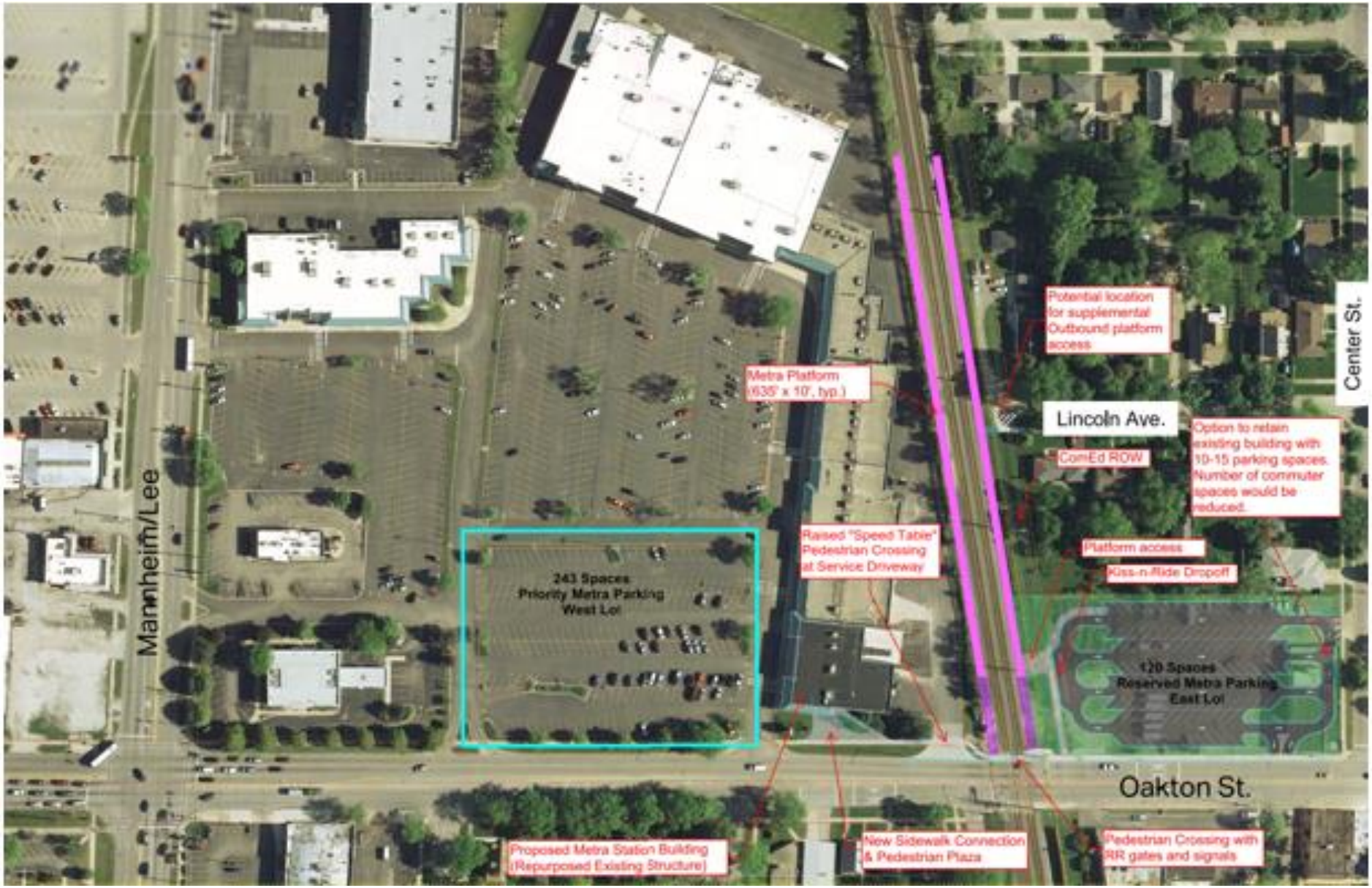
Major elements of the station would include:

- **Station Building** | Enclosed waiting area for passengers boarding trains located on the west (inbound) side of the rail right-of-way, serving passengers boarding trains destined for Chicago.
- **Platforms** | Two low-level side platforms.
- **Parking** | Capacity determined by analysis of rider demand. Potential to have parking on both sides of the railroad tracks.
- **Pedestrian Track Crossing** | At-grade crosswalk of the train tracks adjacent to Oakton Street.
- **Crossing Protection Systems** | Potential need for improvements to minimize gate downtime.

7.2.3 Des Plaines Oakton Street Station Layout Concept

Figure 7-3 presents a conceptual layout for a proposed Des Plaines station at Oakton Street. This is intended to support the feasibility study; the ultimate design may differ from this concept. The potential to redevelop portions of the existing Oaks Shopping Center to accommodate the station waiting area and commuter parking will be considered.

Figure 7-3: Conceptual Oakton Station Layout



7.3 Traffic Impacts

One concern that has been voiced as part of the feasibility study's public involvement is the potential for a station at Oakton to worsen traffic conditions in the area, especially if traffic gates at the crossing are in the down position for longer lengths of time as Metra trains board/alight passengers at the station. The following presents results of a planning-level analysis to gain a better understanding of the traffic impacts of a new station at Oakton Street. Should the station proposal advance, a more comprehensive traffic impact analysis would be required, including conducting traffic counts and applying a traffic model.

7.3.1 Traffic Analysis Background

In order to gain a preliminary understanding of the traffic impacts associated with the implementation of the Des Plaines NCS station at Oakton Street, a planning-level analysis was completed. Existing traffic data used as the basis of this analysis was collected from the Illinois Department of Transportation's (IDOT) Traffic Count Database System. Counts were collected in 2017 and 2018 and are representative of an extended roadway segment. Daily traffic volumes were gathered for each of the major roadways expected to be used by Oakton station commuters (Oakton Street, Lee Street, and US 45/Mannheim Road). Background traffic was projected to the year 2050 using an annual growth rate of 0.58% per year. This annual traffic volume growth rate was developed from an Intersection Design Study (IDS) that was completed for IDOT in 2014 at the intersection of US Route 12/45 (Mannheim Road/Lee Street) and Forest Avenue just north of the proposed station.

For vehicle travel volumes generated by the new station, projected 2050 boardings were identified by origin travel analysis zone (TAZ) and assigned to the key roadways immediately adjacent to the proposed Oakton station during the morning and evening commuter "rush hours" between 6 and 10AM and between 3 and 8PM. Table 7-1 summarizes the existing volumes, 2050 background volumes, 2050 traffic added by the proposed Oakton station, and the 2050 total volumes. The single hour during the morning peak period that experiences the highest hourly traffic volumes on the roadways adjacent to the proposed station is between 7AM and 8AM. The 7AM to 8AM hour is also the period during which the greatest number of vehicle trips are forecast to access the proposed Oakton station parking facilities. In the PM peak period, the single hour that experiences the highest hourly traffic volumes for three of the four roadways is between 4PM and 5PM, and the period during which the greatest number of vehicle traffic trips are forecast to egress the proposed Oakton station parking facilities is between 5PM and 6PM. Existing volumes for Oakton Street west of US 45 were slightly higher during the 5PM to 6PM period compared to the 4PM to 5PM period.

Table 7-1: Summary of Traffic Volumes

	US12/45 (Mannheim Rd/Lee St) North of Oakton St				US12/45 (Mannheim Rd/Lee St) South of Oakton St				Oakton St West of US12/45 (Mannheim Rd/Lee St)				Oakton St East of US12/45 (Mannheim Rd/Lee St)			
Time of Day (hr)	Existing Volume	2050 Background Volume	2050 Traffic Added by Des Plaines Station	2050 Total Traffic	Existing Volume	2050 Background Volume	2050 Traffic Added by Des Plaines Station	2050 Total Traffic	Existing Volume	2050 Background Volume	2050 Traffic Added by Des Plaines Station	2050 Total Traffic	Existing Volume	2050 Background Volume	2050 Traffic Added by Des Plaines Station	2050 Total Traffic
6:00-7:00	830	1,005	33	1,038	910	1,101	16	1,117	1,501	1,817	25	1,841	1,167	1,412	17	1,429
7:00-8:00	1,545	1,870	95	1,965	1,416	1,714	45	1,759	1,948	2,358	70	2,428	1,577	1,909	48	1,957
8:00-9:00	1,321	1,599	0	1,599	1,280	1,549	0	1,549	1,763	2,134	0	2,134	1,512	1,830	0	1,830
9:00-10:00	1,218	1,474	7	1,481	1,149	1,391	3	1,394	1,530	1,852	5	1,857	1,307	1,582	3	1,585
15:00-16:00	1,689	2,044	8	2,052	1,541	1,865	4	1,869	2,040	2,469	6	2,475	1,670	2,021	3	2,024
16:00-17:00	1,844	2,232	0	2,232	1,760	2,130	0	2,130	2,264	2,740	0	2,740	1,865	2,257	0	2,257
17:00-18:00	1,772	2,145	63	2,208	1,620	1,961	30	1,991	2,479	3,000	47	3,047	1,561	1,889	32	1,921
18:00-19:00	1,375	1,664	45	1,709	1,286	1,556	21	1,577	1,864	2,256	33	2,289	1,643	1,988	23	2,011
19:00-20:00	1,031	1,248	9	1,257	903	1,093	4	1,097	1,346	1,629	7	1,636	939	1,136	5	1,141

7.3.2 Level of Service Analysis

A level of service (LOS) was assigned to each major roadway immediately adjacent to the proposed station that was impacted by additional traffic generated by the station in accordance with Exhibit 16-16 of Chapter 16 of the Highway Capacity Manual (HCM) 6th Edition, published in the Transportation Research Board (TRB). It should be noted that these LOS evaluations should be used in the context of a planning study only and should not be used to make final decisions on important design features. This analysis will simply identify locations where improvements might be needed in the future to facilitate the additional traffic generated by the proposed station, but a thorough operational analysis will be needed to make any final decisions about necessary improvements.

Table 7-2 has been adapted from the applicable portions of Exhibit 16-16 of the HCM-6th Edition. The values in the table for the K-factors 0.09, 0.10, and 0.11 are taken directly from Exhibit 16-16. The HCM Exhibit 16-16 does not include service volumes for the K-factor 0.08 and D-factor values less than 0.55 as found on the roadway facilities adjacent to the proposed Des Plaines Station. Linear regression was used to find the line of best fit based on the data provided in the Exhibit 16-16 to establish the daily service volumes for LOS C, LOS D, and LOS E with a K-factor of 0.08 and the corresponding D-factors found in the Oakton station study area; these interpolated values are highlighted in gray.

Table 7-2: Generalized Daily Service Volumes for Urban Street Facilities, Four-Lane Street

K-factor	D-factor	LOS C	LOS D	LOS E
0.08	0.50	2,700	28,900	42,200
	0.51	2,640	28,480	41,540
	0.52	2,580	28,060	40,880
	0.55	2,400	26,800	38,900
	0.60	2,100	24,700	35,600
0.09	0.55	2,200	24,700	35,800
	0.60	2,000	22,700	32,800
0.10	0.55	2,000	22,300	32,200
	0.60	1,800	20,400	29,500
0.11	0.55	1,800	20,300	29,300
	0.60	1,700	18,600	26,900

SOURCE: This table was condensed from Exhibit 16-16 HCM 6th Edition; the values in the table for the K-factors 0.09, 0.10, and 0.11 are taken directly from Exhibit 16-16, and the interpolated values are highlighted in gray. The term K-factor is the proportion of daily traffic occurring in the max hour and is used for analyzing traffic flows. D-factor is the percentage of traffic moving in the peak travel direction. It is calculated by dividing the higher directional volume occurring by the total roadway volume for that hour. Level of service (LOS) is a measure used to relate the quality of traffic service. LOS uses six levels of performance, where A is free flow operation and LOS F is characterized by extremely slow speed, high delay, and extensive queueing.

It is important to note that HCM Exhibit 16-16 is based on various assumptions; a comprehensive operational analysis will need to be completed to determine mitigation measures that may be necessary to accommodate future traffic conditions. For reference, HCM Exhibit 16-16 / Table 7-2 is applicable under the following assumptions:

- No roundabouts or all-way stop-controlled intersections along the facility
- Coordinated, semi-actuated traffic signals; Arrival Type 4; 120-s cycle time; protected left-turn phases; 0.45 weighted average g/c ratio (Effective green time per cycle ratio for lane group)
- Exclusive left-turn lanes with adequate queue storage provided at traffic signals
- No exclusive right-turn lanes provided
- No restrictive median
- 2-mile facility length
- 10% of traffic turns left and 10% turns right at each traffic signal
- Peak hour factor = 0.92
- Base saturation flow rate = 1,900 passenger car per hour per lane (pcphpl)
- 30mph facility: signal spacing = 1,050 feet and 20 access pts/mi
- 45mph facility: signal spacing = 1,500 feet and 10 access pts/mi

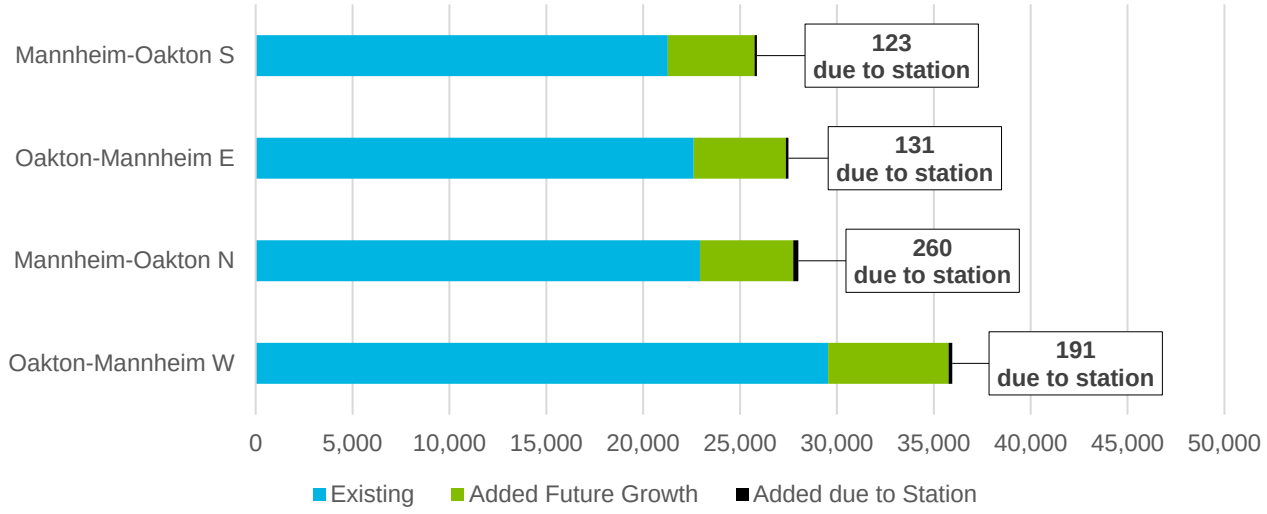
The proposed Oakton station facility does potentially fall within some of these criteria, but many of these cannot be confirmed until the project definition advances to identify information related to signal timing and traffic data. Using Table 7-2 / HCM Exhibit 16-16 as guidance, Table 7-3 summarizes planning-level LOS metrics for the roadway segments directly adjacent to the proposed station, and Figure 7-4 represents the vehicles per day visually.

Table 7-3: Planning Level Traffic Assessment

	Existing Traffic				2050 Background Volume				2050 Total Traffic			
	vpd	K-Factor	D-Factor	LOS	Vpd	K-Factor	D-Factor	LOS	Vpd	K-Factor	D-Factor	LOS
US 45/Mannheim Rd North of Oakton Street	22,926	0.08	0.50	D	27,747	0.08	0.50	D	28,007	0.08	0.51	D
US 45/Mannheim Rd/Lee St South of Oakton St	21,273	0.08	0.52	D	25,746	0.08	0.52	D	25,869	0.08	0.52	D
Oakton Street West of US 45/Mannheim Rd	29,547	0.08	0.52	E	35,760	0.08	0.52	E	35,951	0.08	0.52	E
Oakton Street East of US 45/Mannheim Rd	22,609	0.08	0.51	D	27,363	0.08	0.51	D	27,494	0.08	0.51	D

vpd = vehicles per day

Figure 7-4: Existing and Future Traffic Volumes (vpd) by Direction



Based on Table 7-3, the additional daily traffic generated by the proposed Oakton train station will not result in the adjacent roadway network experiencing a degradation in LOS. The additional traffic generated is projected to be minimal compared to the overall volume of traffic forecast for the year 2050. During the morning commute between 6AM and 10AM, the increase in hourly volumes ranges from 3 vehicles per hour (vph) to 95 vph. The greatest additional volume to peak hour flows is along US 45/Mannheim Road with an additional 95 vehicles in the southbound direction between 7AM and 8AM. Overall, the roadways adjacent to the proposed Oakton station do not see significant additional traffic when compared to the overall background traffic volumes. It is anticipated that minimal mitigation efforts would be necessary to alleviate the impacts of this additional traffic. However, if traffic operations need to be improved to a better LOS than the current LOS under existing conditions, then greater modifications to the roadway network will be necessary. A thorough operational traffic analysis will be needed to determine the extent of the mitigation measures necessary to improve the LOS under future traffic conditions. It should be noted that the additional traffic volume relates only to the forecast users of the station who access and egress the station by a vehicle to board or alight trains during the morning and afternoon/evening commutes. The impacts associated with development that could be planned in conjunction with, or occur as a result of, the proposed new station, were not factored into this analysis. Further coordination with the Chicago Metropolitan Agency for Planning (CMAP) will be necessary to confirm or develop growth rates on the adjacent roadway network.

7.3.3 Railroad Crossing Gate Impacts

The addition of the proposed station will increase the amount of time railroad crossing gates are down, impacting the traffic queueing along Oakton Street. A preliminary analysis shows that inbound trains that stop at the proposed Des Plaines station (9 per day) will cause the gates to come down as they approach the station. Given that the train will board north of the crossing, it is believed that crossing protection systems will allow gates to come up after the train stops to board/alight passengers. As the train leaves the station, the gates would come down as the train approaches and passes through the crossing. The typical time for a train to activate the gates to come down, traverse the crossing, and reactivate the gates to the up position is an estimated 45 seconds. The additional downtime associated

with stopping at the proposed station is an estimated 25 seconds. Over the nine inbound trains for the day, this equates to 3.75 minutes of additional gate downtime per day. This preliminary assessment has not been confirmed by the CN or Metra, and it is possible that the gates would remain in the down position while the train is standing at the station. This result would increase the amount of time gates are down because of the proposed station and would have a greater negative impact on Oakton Street traffic flow. The next step is to confer with the railroads on this question.

Outbound trains that stop at the proposed station (10 per day) would also impact gate downtime, since trains will travel slower through the crossing before stopping at the proposed new station north of the crossing. The impact is estimated as a 25-second increase from current conditions for a total of 4.17 minutes per day. Given the approximate 15 hours of service on the Metra NCS line per weekday, the combined inbound and outbound added gate downtime is 7.92 minutes per day, which represents an 0.9% increase in the amount of time the gates would be down per weekday. It is important to note that freight trains also use this rail line, and they require significantly more time to clear a crossing compared to commuter trains because of the much longer length and typically slower speeds. It is believed that there are as many as 10 freight trains on this segment of the line per day.

Table 7-4 presents the breakdown in estimated additional gate downtime for trains stopping at the proposed station.

Table 7-4: Estimated Gate Downtime Comparison

	Inbound Trains	Outbound Trains	Total
Service Day	11.8 hours	13.3 hours	14.9 hours
Trains per Day	9	10	19
Added Gate Downtime per Train	25 seconds	25 seconds	50 seconds
Additional Gate Downtime per Day	3.75 minutes	4.17 minutes	7.92 minutes
% added Downtime per Day	0.5%	0.5%	0.9%

This impact would seem to be comparatively small, although to quantify the increase in queue lengths on Oakton Street would require a more detailed operational analysis at the railroad crossing. This analysis would need to consider the signal timing and turning movement counts at each crossing and adjacent intersections.

7.4 Stormwater Impacts

The stormwater management requirements of the Metropolitan Water Reclamation District of Greater Chicago (MWRD) apply when the property holdings of a non-residential project exceed an applicable threshold. The total area likely to be considered property holdings for the Oakton station concept would include the existing parking lot and building west of the CN/NCS tracks as well as the property east of the tracks. The station property holdings area would exceed the applicable threshold set by MWRD within its Watershed Management Ordinance (WMO). As a result, development of the station and parking would be required to meet MWRD's stormwater requirements. An MWRD Watershed Management permit would be required.

The most impactful stormwater requirement is typically the limited release rate. MWRD has recently established new release rate limits by watershed. The proposed Oakton station is located in the Des

Plaines River Watershed, which has MWRD's most restrictive release rate. The site would be required to restrict the release rate (of stormwater from the disturbed area) to 0.2 cubic feet per second (cfs) per acre, which would require a storage facility to detain the excess stormwater when actual runoff rates exceed the allowable limit.

The proposed concept would disturb a total area of 2.1 acres. The disturbed area is almost entirely located east of the tracks, for the proposed parking lot; minor proposed new sidewalk/plaza areas are included west of the tracks. Impervious and pervious areas that would be disturbed by the proposed station were delineated to determine the combined total area. This 2.1-acre area would be subject to MWRD's stormwater requirements. For 2.1 acres of disturbed area, the allowable release rate is 0.42 cfs.

The total runoff was estimated within the stormwater modelling software package *XPSWMM* using the total disturbed area described above and a weighted curve number (CN). The weighted CN value, which is used in predicting direct runoff, is 84, based on the delineation of proposed impervious and pervious areas (from disturbed areas only). The 100-year, 24-hour rainfall level is indicated by MWRD in its stormwater requirements, and a recent amendment by MWRD requires that new rainfall data published in 2019 be used. Based on the 2019 data, the total rainfall depth is 8.47 inches. The stormwater modelling results indicated that the total runoff volume for the 2.1 acres of disturbed area would be 50,000 cubic feet (CF).

A conceptual orifice restrictor was modeled to limit the release rate to a peak of 0.42 cfs, and this resulted in a required storage volume of 35,000 CF. For the current conceptual level of design, this represents the amount of detention storage needed to meet MWRD's stormwater management requirements.

The proposed east side parking lot pavement can be graded to include a few small depressional storage areas to handle approximately 3,000 CF of the required storage volume. The remaining 32,000 CF would be accommodated within underground storage at the east site. The underground storage would be provided using a pre-cast modular storage chamber such as StormTrap or equivalent. The footprint for the storage would be approximately 100 feet by 80 feet, assuming modules with internal height of 5.0 feet.

The FEMA floodplain mapping (panel 17031C0219J effective August 19, 2008) shows that the proposed Oakton station would not impact any floodplains.

7.5 Capital Costs

The process to estimate the cost to build the Oakton station and related facilities follows the Federal Transit Administration's (FTA) Standard Cost Category (SCC) costing structure and methodology. This process involves quantifying the units associated with each project improvement element and applying unit costs to estimate the capital costs. It should be noted that these costs are intended as planning estimates. As the project advances, the project designs will be more detailed (e.g., based on engineering surveys), allowing for more refined estimates.

7.5.1 Capital Improvements

The conceptual station layout (Figure 7-3) served as the basis for determining the quantity take-offs used in estimating capital costs. The improvement elements that were costed represent what has been assumed for the initial roll-out of the station, and included the following:

- **Station Building** | This would be the station's primary waiting area (i.e., depot or warming shelter), and would be on the west (inbound) side of the rail right-of-way, serving passengers boarding trains destined for Chicago. Repurposing the storefront at the southeast corner of the Oaks Shopping Center is proposed. A modest investment to create a passenger waiting area within a portion of the building was assumed, and the ongoing use of the space would be under a lease agreement between the Center's owner and the City. A small passenger shelter could also be provided on the outbound platform, serving riders waiting to board northbound trains.

- **Platforms** | Two low-level 10-foot wide side platforms that would accommodate eight rail coaches were assumed. Platforms would include lighting, signage, and tactile strips. The south end of each 635'-platform would be set 100 feet north of Oakton Street. Inter-track fencing would be installed to prohibit passengers from crossing tracks at unauthorized locations.

- **Pedestrian Circulation** | Accommodating safe and efficient pedestrian movement within the station area will be important for the convenience and safety of passengers. These improvements would include connections to the platforms from the sidewalk and access to the northbound platform from the east parking lot and at the Lincoln Street cul-de-sac (subject to City and community input). The pedestrian connection from the station building to the sidewalk would include a "speed table" across the truck service drive as a traffic calming device. The service drive would be signed as "Do Not Enter" to prohibit Metra drop-offs, permitting service vehicles to operate southbound only. In addition, it is proposed that a pedestrian plaza/gathering space be developed along the south edge of the station building.

- **Parking** | The analysis of ridership demand provides insight on the number of boarding passengers who would be expected to use park-and-ride, which would serve as the basis for determining parking capacity and required land acquisition. Parking is proposed on both sides of the railroad tracks to minimize the number of vehicles using the Oakton grade crossing. Vehicle access from Oakton Street will be an important issue to address, considering current traffic levels and impacts associated with future station area development. Design of the east lot will need to consider the impacts of a secondary access point at Center Street, and the effect on the residential neighborhood to the north. It is assumed that the west parking lot would be operated by the City under a lease agreement with the Oaks Shopping Center. Drop-off/pick-up lanes would be provided in both parking lots.

- **Pedestrian Track Crossing** | It is proposed that an at-grade crossing be provided via the existing sidewalk along the north side of Oakton Street. Safety protection and warning devices would be included.

- **Crossing Protection Systems** | Further research on the impact that a station could have on the vehicle crossing gates at Oakton will be required, and may result in recommendations for further improvements.

The FTA SCC methodology assumes two forms of project contingency:

- **Allocated** | A percentage is applied to each project element. Rates vary by element type and are affected by the degree of uncertainty for a given element; for example, Allocated Contingency for Utilities is high due to the minimal information known at this time.
- **Unallocated** | An overall percentage is applied to total estimated costs (e.g., 10%). This factor is applied as an allowance for unknowns and uncertainties, but on a broader level than Allocated Contingencies, and typically allows for changes in scope and schedule.

7.5.2 Estimated Capital Costs

Table 7-5 presents the estimated capital costs to construct the Oakton station and associated improvements. It should be emphasized that these costs are considered planning-level estimates; a higher level of precision will require more detailed analysis in subsequent design phases of the station development project. The overall project investment is estimated at $11.6 million in 2018 dollars.

Table 7-5: Oakton Station Capital Costs (2018 $$)

Cost Category	Project Element	Quantity	Unit of Measure-ment	2018 Unit Cost	2018 Base Cost	Allocated Contingency	Total Cost
Waiting Space	Warming house rehab existing store front (inbound)	1	lump sum	60,000	60,000	20%	72,000
	Shelter (one, outbound)	80	sq ft	265	21,200	15%	24,400
Platform	Structure, surface, tactile, signage, lighting (2 sides)	1,270	feet	2,602	3,304,540	15%	3,800,200
	Inter-track fencing	800	feet	3.00	2,400	10%	2,600
	Visual Information System (platforms & sta. building)	3	each	40,597	121,791	15%	140,100
Circulation	Ped Crosswalk along Oakton	30	ft	1,522	45,660	20%	54,800
	Stairs from Lincoln St. cul-de-sac & East parking	6	risers	3,947	23,682	20%	28,400
	Sidewalk Extension of Platforms (2X100'X10')	2,000	sq ft	16.0	32,000	20%	38,400
	Speed Table-Ped Crossing on Serv drive (45' X 30')	1,350	sq ft	32.0	43,200	20%	51,800
	Sidewalk from Station to Platform (60' X 10')	600	sq ft	16.0	9,600	20%	11,500
	Sidewalks east-side parking to platform	4,750	sq ft	16.0	76,000	20%	91,200
	Plaza/Gathering Space south of Station	1	lump sum	100,000	100,000	20%	120,000
Parking & Roadway	Surface Parking Lot on east side of CN	120	space	8,878	1,065,360	20%	1,278,400
	Surface Parking West-side of CN - Reseal & Stripe	72,000	sq ft	0.80	57,600	20%	69,100
Railroad Signaling	Modify Crossing Protection Systems	1	each	500,000	500,000	included	500,000
	Ped Crosswalk Protection	1	each	25,373	25,373	20%	30,400
Site Work	Demo restaurant building	1	each	10,000	10,000	20%	12,000
	Flagging (based on length of construction)	160	days	1,041	166,560	15%	191,500
	Temporary Facilities & Other Indirect Constrc Costs	1	each	50,000	50,000	20%	60,000
Utilities	Utility work	1,000	feet	700	700,000	30%	910,000
Drainage	Stormwater Detention	1	lump sum	350,000	350,000	10%	385,000
Land	east-side	1.50	acre	364,279	546,419	30%	710,300
Total Construction Costs							**7,871,800**
Soft Costs							
PROFESSIONAL SERVICES (applies to Construction Costs)			% of Const Costs				
80.01	Project Development		2%				157,436
80.02	Engineering		4%				275,513
80.03	Project Mang. for Design and Construction		3%				236,154
80.04	Construction Administration & Management		10%				787,180
80.05	Professional Liability & other Non-Constr. Insur.		2%				157,436
80.06	Legal; Permits; Review Fees , etc.		2%				118,077
80.07	Surveys, Testing, Investigation, Inspection		2%				118,077
80.08	Start up		1%				78,718
	Subtotal Professional Services		25%				**1,928,600**
	Total wo/Unallocated Contingency						**10,510,700**
	10% Unallocated Contingency						1,051,100
	Total Cost with Unallocated Contingency						11,561,800
	Total Cost Rounded to nearest thousand						**11,562,000**

7.6 Operational & Maintenance (O&M) Costs

The costs to operate and maintain the station and parking facilities, including the components of each (e.g., building, platforms, access ways) will involve several activities, including janitorial/cleaning services, snow removal, utilities, security, parking lot fee collection/enforcement, and refuse pick-up. In addition, stopping and starting trains to serve the Oakton station will impact Metra's operational costs. Metra prefers to partner with local governments (usually municipalities) to take on many of the responsibilities for maintaining and operating station and parking facilities. Many municipal costs are offset by station vendor revenues and parking fees. Estimates of annual costs and responsibilities follow.

7.6.1 Train Costs

Isolating a single station's contribution to the O&M costs of a line or system is difficult, since much of the cost to operate a train is not affected by the stations served. However, one variable cost that is affected by stations is the estimated extra diesel fuel required to stop and start a train. Based on Metra research (*Metra Mechanical Department Fuel Test*, April 2012), it is estimated that diesel fuel consumption to stop and start a train averages 6.6 gallons. As shown in Table 7-6, the estimated fuel cost to Metra to serve the proposed Oakton station based on 2018 fuel prices is $64,000 per year.

Table 7-6: Estimated Annual Fuel Costs to Stop/Start Trains at Proposed Oakton Station

	Oakton Train Stops per Day	Service Days per Year	Annual Stops & Cost
Weekday	19	255	4,845
Saturday	0	52	0
Sunday Holiday	0	58	0
Total Oakton Stops per Year			4,845
Gallons per Stop			6.6
Cost per Gallon (2018)			$2.00
Estimated Annual Fuel Costs			$64,000

7.6.2 Station Costs

As noted above, the opening-day station facility would be leased space in the Oaks Shopping Center's unit closest to Oakton Street (south of Goodwill). It has been assumed that the City would lease half the 7,200 square feet of space, which is likely more than would be needed but represents a conservative estimate. Based on comparable nearby lease costs, an annual rate of $19 per square foot was assumed as a modified gross rate, which would not include costs for utilities, maintenance, etc. A combined lease and other costs rate of $22 per square foot was used, or approximately $80,000 per year.

It is assumed that the station will not have a ticket agent or ticket vending machines, due to Metra's success with passenger use of its mobile ticketing application, Ventra. It is also assumed that Metra will require that Des Plaines be responsible for the operation and maintenance of the station waiting area and platform access links (i.e., sidewalks). Metra typically retains responsibility for maintaining platforms, which primarily includes snow removal and salting. Based on Metra data, the cost to

maintain two platforms is estimated at $8,000 per year. The City could defray some of their station costs using revenues from contracting with vendors at the station (e.g., a coffee stand).

7.6.3 Parking Costs

Metra prefers that the host community be responsible for operating and maintaining commuter parking facilities. For the new parking to be developed east of the NCS line, it is assumed that maintenance will be handled by City Public Works and Police Department personnel. Since operations and maintenance costs can be assumed to be covered by the revenues generated through parking fees, no net costs are assumed for parking. As part of the price-setting for the parking, the estimated revenue stream should also be used to establish a sinking fund to finance the renewal of the facilities in the future.

For proposed parking on the west side of the railroad tracks, it is assumed that the City will lease spaces for commuters from the Oaks Shopping Center. The costs to the City would be a negotiated, and it is not clear what this annual fee would be. Since it can be argued that commuter use of this parking will bring in potential customers to the Center, it is believed that the City will be in a strong negotiating position. As noted under the capital costs, the existing parking would be sealed and striped by the City, and the City would probably operate and maintain the parking. Similar to the east side parking, it is assumed that ongoing operating and maintenance costs would be offset by parking fees paid by commuters.

7.6.4 Summary O&M Costs

Table 7-7 summarizes the estimated annual O&M costs that would be associated with a new NCS Des Plaines station at Oakton Street.

Table 7-7: Estimated Annual Summary O&M Costs

	City of Des Plaines	Metra	Total
Diesel Fuel	$0	$64,000	$64,000
Station Costs	80,000	8,000	88,000
Parking Costs (net)	0	0	0
Total	$80,000	$72,000	$152,000

7.7 Revenues

Additional Metra fare revenues attributed to a station at Oakton Street were estimated based on the net change in boardings for Oakton and nearby stations applied to Metra current fares. In addition, revenues derived from parking fees and from possible station vendors are addressed.

7.7.1 Fare Revenues

Estimating fare revenue impacts was based on the projected boardings at the proposed NCS Oakton station and four nearby existing stations (i.e., NCS Prospect Heights and UP-NW Cumberland, Des Plaines, and Dee Road Stations), as documented in *6.4 Travel Demand*. Forecasted 2050 boardings without Oakton (i.e., No-Build) and with Oakton (Build) were annualized by using factors derived from

NCS and UP-NW passenger loads by service day for the period July 2017 through June 2018 (*FY19 Metra Operating and Capital Program & Budget* (Metra, 2018)). Average fares were derived from the distribution of NCS and UP-NW sales by ticket type and respective fare zone rates by ticket type in 2019. Table 7-8 reveals that the Oakton station would generate over $1.2 million based on 2050 passenger use and 2019 fares. Factoring in changes in station boardings and fare revenues at nearby stations results in a net positive annual revenue change of $0.8 million.

Table 7-8: Estimated 2050 Annual Fare Revenue Impacts of Oakton Station

		Oakton	Prospect Heights	Cumber-land	Des Plaines	Dee Road	Total
	Fare Zone	*D*	*E*	*D*	*D*	*C*	
No-Build	Weekday Boardings	--	473	567	1,190	837	3,067
	Est. Annual Passengers[1]	--	241,000	316,000	664,000	467,000	1,688,000
	Est. Annual Revenue[2]		$1,270,000	$1,542,000	$3,240,000	$2,018,000	$8,070,000
Build	Weekday Boardings	**498**	331	689	1,203	672	3,393
	Est. Annual Passengers[1]	**254,000**	169,000	384,000	671,000	375,000	1,853,000
	Est. Annual Revenue[2]	**$1,240,000**	$891,000	$1,874,000	$3,274,000	$1,621,000	8,900,000
Annual Fare Revenue Difference		**$1,240,000**	-$379,000	$332,000	$34,000	-$397,000	**$830,000**

[1]*Annualization factor (279) based on UP-NW passenger loads by service day for July 2017-June 2018. The NCS factor used was 255.*

[2]*Based on applicable average fare zone rates, weighted by ticket sales for the July 2017-June 2018 period.*

7.7.2 Other Revenue

Most Metra stations provide parking facilities to accommodate riders, and most are available on a fee basis. As noted in Section 7.6, the standard practice at Metra stations is for the host community to be responsible for the operation and maintenance of parking. The setting of parking fees for users is determined partly to generate sufficient revenues to fully cover costs, plus some additional amount that can be used to establish a sinking fund for the eventual renewal of the facilities. Another factor is ensuring that parking fees are comparable those at nearby stations. If fees are comparatively lower, a station may be overwhelmed by demand, while pricing too high can result in facilities being underused. Stations near the proposed Oakton station have daily fees between $1.50 and $2.00 per day. Some communities also offer permit passes, which can be sold for varying time periods (month, quarter, semi-annual, or annual).

Another potential city revenue stream associated with the station is leasing space in the station building to a vendor, which can include a coffee/newsstand.

7.8 Potential Funding Sources

In order to advance the proposed NCS Des Plaines station at Oakton Street to implementation, a potential funding source or sources will need to be determined. Several potential funding programs are described below, including the degree of compatibility and applicability to the station proposal.

7.8.1 FTA Capital Investment Grants Program (CIG)

The FTA's Section 5309 CIG program includes New Starts, Small Starts, and Core Capacity Improvements grants. These discretionary grants fund transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and bus rapid transit. The process for securing these grants requires agencies to complete a series of steps over several years. These programs are intended to fund major new or extended fixed-guideway or bus rapid transit (BRT) projects. The scale of a single commuter rail station would not seem consistent with the projects typically funded by these programs.

7.8.2 Better Utilizing Investments to Leverage Development (BUILD)

The Better Utilizing Investments to Leverage Development (BUILD) grant program administered through the US Department of Transportation (DOT) replaced Transportation Investment Generating Economic Recovery (TIGER) grants in 2017. This very competitive program is intended to invest in road, rail, transit, and port projects that will achieve national objectives. In each competition, DOT receives hundreds of applications to build and repair critical pieces of freight and passenger transportation networks. The eligibility requirements of BUILD allow project sponsors at the state and local levels to obtain funding for multi-modal, multi-jurisdictional projects that are more difficult to support through traditional DOT programs. BUILD can provide capital funding directly to any public entity, including municipalities. Projects for BUILD are evaluated based on merit criteria that include safety, economic competitiveness, quality of life, environmental protection, state of good repair, innovation, partnership, and additional non-Federal revenue for future transportation infrastructure investments.

This may be a funding program to consider, although the highly competitive nature of the grant process should be considered at the national level, as well as coordination at the local level (state and region), as stakeholders and political leaders consider which projects in the region to promote. The effort of preparing a compelling and visually attractive application can be extensive, requiring an economic analysis of benefits and costs. If a decision is made to develop a station in Des Plaines, a more comprehensive assessment of this source should be performed.

7.8.3 Congestion Mitigation and Air Quality Improvement (CMAQ)

The Congestion Mitigation and Air Quality Improvement (CMAQ) is a federally funded program that funds surface transportation improvements designed to improve air quality and mitigate congestion. In northeastern Illinois the Chicago Metropolitan Agency for Planning (CMAP) is the programmer of the CMAQ funds through the MPO Policy Committee. Northeastern Illinois is a moderate non-attainment area for the 8-hour ozone standard and a non-attainment area for annual fine particulate matter standard (PM2.5). Therefore, federal guidance and the CMAQ Project Selection Committee give priority to projects that reduce emissions that contribute to ground level ozone or reduce PM2.5. To carry out these goals of improving air quality and reducing congestion, CMAP uses four objectives in its project selection process:

- Localized Congestion Relief
- Operational Improvements
- Mode Shift

- Direct Emissions Reduction

Among eligible projects, the program will fund the capital costs of transit facility projects that enhance the existing transit system through adding or improving facilities such as stations.

7.8.4 Surface Transportation Program (STP)

The Surface Transportation Program (STP) provides federal flexible funding that may be used by localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects. Funds are programmed locally and administered through CMAP and the Illinois Department of Transportation (IDOT). The City of Des Plaines is in the Northwest Council of Mayors / Northwest Municipal Conference. The Council has a self-determined method for selecting projects.

7.8.5 Invest in Cook

The Cook County Department of Transportation and Highways has launched the *Invest in Cook* grant program, funding projects across the county. A relatively recent program, it awarded $14.2 million in its first two years to fund 64 projects, including projects for rail, bicycle/pedestrian improvements, and roads. Half of the grants have gone to projects in low- and moderate-income communities. In 2019, the most recent year, it awarded $8.5 million for projects spanning 27 municipalities in Cook County.

The County solicits applications from local governments and transit agencies, which may partner with private for-profit or nonprofit groups. Projects should support improvements consistent with the five priorities of *Connecting Cook County*:

- Prioritize Transit and Other Transportation Alternatives
- Support the Region's Role as North America's Freight Capital
- Promote Equal Access to Opportunities
- Maintain and Modernize What Already Exists
- Increase Investments in Transportation

Awards may cover the cost of planning and feasibility studies, engineering, right-of-way acquisition, and construction. The deadline to apply is in the spring, and winners are announced in the summer.

7.8.6 Value Capture

Value capture is a type of public financing that recovers some or all of the value that public infrastructure generates for private landowners. There are several different variations of value capture funding mechanisms that can be considered, including: tax increment financing (TIF) districts, benefit assessment district, real property transfer tax, and joint development.

Tax Increment Financing (TIF)

TIF districts are a common form of value capture. A TIF district with specific geographic boundaries is created for a specific time period—for example, 23 years. Over this time period, the property tax revenue income from the increase (or "increment") in assessed value from the base year is set aside in a separate fund which can only be used to pay for or finance improvements within the TIF district. In many cases, there is insufficient upfront funding to pay for the infrastructure needed to encourage uplift, which is why TIF funding is often used to finance the debt that was taken on to enable construction.

The growth in assessed real estate value is typically attributed to public investment in the area, such as the construction of a major piece of infrastructure like a train station, which nearby private landowners benefit from when their property values increase. The mechanism is usually more politically palatable because it does not involve implementing any new taxes, but still creates a dedicated future revenue stream to service debt. It also ensures that some of the public benefit from the investment feeds back into the project—i.e., when nearby landowners' property rises in value thanks to the investment, their taxes help support the project.

Benefit Assessment District

A benefit assessment district, also known as a special assessment district, involves a new tax levy within a specific geographic area (the "benefit zone" – typically a half-mile radius), where the property owners can be identified as receiving a direct benefit from a public investment project. Rather than being tied to the assessed value of the parcel, the levy is proportional to the benefit received from the investment. For example, in the case of the proposed Oakton station, an impact assessment could be tied to new transit-oriented development near the station, which would also be weighed against potential density bonuses and/or reduced parking requirements.

Since it involves an additional tax on citizens, it can be difficult to gain support for this mechanism. Benefit assessment districts do have proponents, however, due the assumption that that those who benefit the most from an investment, should pay the most—though left unchecked this can lead to increasing concentration of public investment in areas that can afford higher taxes to offset some, but not all, of the costs.

Sales Transaction Tax

In locations that expect to see increased uplift and real estate transaction activity, a tax on sales transactions—or a real property transfer tax—can be another source of revenue. As developers or individuals purchase, renovate, and sell properties, a tax on the transaction can be levied and revenues dedicated to specific purposes, such as financing transportation investments. However, given that there is a need to encourage private investment in the Oakton station area, it appears premature to propose such a measure at this time.

Joint Development

Joint development can take many different forms, but generally covers the integrated development of transit and non-transit improvements. A common form is the construction of a transit station coordinated with the development of physically adjacent and supporting commercial, residential, or mixed-use development. In such an example, the public agency often contributes the land and some or all of capital costs for the transit/infrastructure component, while the private developer contributes funding and professional expertise to ensuring a successful and profitable project. This may be accomplished using a public-private partnership and is predicated on sharing both the risks and rewards across the public and private partners. Terms of the joint development must be negotiated on a case-by-case basis, including items such as ownership or lease terms, as well as the divisions of rights and responsibilities among parties. FTA promotes joint development by allowing FTA funds to be contributed to eligible joint development activity.

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