Metra UP-NW Line Upgrade
Ridgefield Metra Station

Traffic Impact Study



City of Crystal Lake
McHenry County, Illinois

Prepared for:
City of Crystal Lake

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EXECUTIVE SUMMARY

This Traffic Impact Study (TIS) has been created to reflect the development, as currently proposed, of a new Metra commuter rail station northwest of Crystal Lake in Ridgefield.

The TIS details the impacts to and makes recommendations for the roadways and intersections adjacent to the proposed station. This includes population and ridership projections, underlying traffic analysis for the roadway network in close proximity to the station location, access planning in accordance with the McHenry County Access Control and Right-of-Way (ROW) Ordinance, and recommendations of necessary improvements. Included as part of this TIS are evaluation of existing comprehensive plans, stakeholder input, Metra ridership data, and the existing research previously prepared by SEC Group, Inc., URS, and Transportation Strategies. Evaluation of 2015 and 2030 design year scenarios has been performed and the proposed East Woodstock Metra Station was accounted for with respect to trip distribution and trip generation, considering the boundaries of each stations' service area border with one another.

Key facts and findings are as follows:

- Certain improvements are recommended based only on existing conditions. These include signalization of the Country Club Road/Hillside Road and Country Club Road-Market Street/Ridgefield Road intersections and multiple additional turn lanes.
- Access to the site will be via one access drive off Country Club Road under stop sign control opposite Prairie Drive.
- Based on background traffic growth alone, several more intersections will warrant signalization by 2030, although no more in 2015 without the site. These include:

2030 Warrants
Country Club Road/McConnell Road
Ridgefield Road/Tartan Drive

- In order to accommodate the additional site-generated traffic, some further roadway and intersection improvements are necessary in the study area to accommodate the 2015 design year traffic. Installed at this time, should be the signal at U.S. 14/Lucas Road-Tartan Drive.
- Improvements will be necessitated on U.S. Route 14; however these will be completed by IDOT based on a just completed Phase I study. It is presumed these improvements will be made by 2030.
- Turn lane recommendations for these conditions are outlined within the report.
- In addition, consideration for alternative means of accommodating the region's growth via unique roadway solutions should be considered. These could include possible roundabouts, dedicated on-road bike lanes, and unique station accommodations to promote efficient use of the roadway facilities.
- Country Club Road/Prairie Drive (site entrance) will warrant a traffic signal by 2030; however, it's necessity will depend on how the area develops.

I. Introduction

Patrick Engineering Inc. (Patrick) was retained by the City of Crystal Lake to prepare a Traffic Impact Study detailing the impacts to and recommendations for the roadways and intersections adjacent to the proposed Metra Station at Ridgefield. The new commuter rail station development, located west of Country Club Road opposite Prairie Drive, north of Ridgefield Road, will provide a total of 875 parking spaces including 18 handicap spaces.

This area lies just northwest of Crystal Lake, in an area locally known as Ridgefield. The site lies at the intersection of several roadways, and would draw traffic from all directions. The location is just north of McHenry County College.

This report will outline the site trip generation, traffic assignment, and projections and include analyses for the build-out year and fifteen years beyond for No Build and Build Conditions. Based on these, the impact to the existing roadway network will be evaluated and improvements to mitigate this impact will be recommended.

II. Existing Conditions

The existing site area is shown in Figure 1 within Appendix B. The land uses adjacent to the site are largely residential and agricultural, with some small industrial or commercial uses. Just south of the site area is McHenry County College (MCC), a local community college with current enrollment of approximately 6,500.

A. Roadway Network

The existing roadway network is described as follows. Direct access to the site will be via Country Club Road at an access located across from Prairie Drive. This intersection is located north of Ridgefield Road between Hillside Road and McConnell Road. Country Club Road is a north-south route that consists of one lane of travel in each direction and is under the jurisdiction of the McHenry County Division of Transportation.

The adjacent intersection to the south is at Hillside Road. It forms an unsignalized tee intersection, with Hillside Road providing access to the east. Hillside Road is an east-west roadway that consists of one lane in each direction. The Hillside Road approach to the intersection is stop-controlled.

The adjacent intersection to the north is at McConnell Road. It forms an unsignalized tee intersection, with McConnell Road providing access to the west. McConnell Road is an east-west roadway that consists of one lane in each direction. The McConnell Road approach to the intersection is stop-controlled.

South of the Country Club Road/Hillside Road intersection, Country Club Road intersects with Ridgefield Road, after crossing the Metra tracks. At this point, Country Club Road becomes Market Street. Ridgefield Road is an east-west roadway at this location, with one

lane in each direction. The intersection is three-way stop-controlled as southbound Country Club Road traffic does not stop.

Just east of this intersection, Ridgefield Road intersects at an unsignalized tee intersection with Tartan Drive. Tartan Drive is a north-south roadway, approaching Ridgefield from the south, with one lane in each direction. The Tartan approach to the intersection is stop-controlled.

Ridgefield Road east and west of these intersections loops southward to form two intersections with U.S. 14. U.S. 14 is a major northwest-southeast roadway, and is classified as a Strategic Regional Arterial. The southern intersection forms a signalized tee intersection with U.S. 14. At this southern intersection, U.S. 14 provides one lane in each direction with no turn lanes. Ridgefield Road is also only one lane in each direction at this location. At the northern intersection, U.S. 14 again provides one lane in each direction with no turn lanes and Ridgefield Road is also only one lane. The northern Ridgefield Road/U.S. 14 intersection is stop-controlled on Ridgefield.

Tartan Drive south of the intersection with Ridgefield Road passes through MCC and intersects with U.S. 14 as well. It becomes Lucas Road across U.S. 14. The north and south legs of Tartan and Lucas have only one lane in each direction, and U.S. 14 again provides one lane in each direction with separate left-turn lanes on the east and west approaches. The four-way intersection is stop-controlled on the Tartan and Lucas approaches.

These eight intersections comprise the roadway network to be examined as part of this TIS. The table below summarizes the jurisdiction and posted speed limits of the routes in the study area.

Road	Jurisdiction	Speed Limit (mph)
Country Club Road	McHenry County DOT	45
Ridgefield Road	McHenry County DOT	45
U.S. 14	IDOT	50, 40 at Ridgefield south
McConnell Road	Dorr Township	45
Hillside Road	Dorr Township	30
Tartan Drive	McHenry County College	15
Lucas Road	Dorr Township	40
Prairie Drive	Dorr Township	unmarked
Market Street	Dorr Township	30

The existing roadway layout is also shown in Figure 1. .

B. Traffic Volumes

This section discusses existing background traffic in the vicinity of the proposed development. As noted above, the roadway network in the study area is comprised of eight intersections.

Existing traffic counts were utilized at most of the intersections. These intersections included:

- McConnell Road and Country Club Road
- Country Club Road and Prairie Drive – *Site Entrance*
- Country Club Road and Hillside Road
- Ridgefield Road and Country Club Road
- Ridgefield Road and Tartan Drive

However, additional traffic counts were required and taken for the below intersections:

- Ridgefield Road (north) and U.S. 14
- Lucas Road/Tartan Drive and U.S. 14
- Ridgefield Road (south) and U.S. 14

The counts available were from spring 2007, October 2009, and December 2009. These have been tabulated and balanced, and existing Average Daily Traffic (ADT) and Peak Hour Volume (PHV) information compiled. A summary of existing and projected future ADT volumes is shown in Figure 2 of Appendix C.

Based on examination of the traffic patterns, PHVs, and the Metra ridership, weekday morning and evening peak hours were identified for analysis. It should be noted the peak hours varied for different study area intersections versus the anticipated station peak hours. Therefore, peak hours were chosen to be the weekday morning and afternoon hours when the cumulative traffic anticipated on the roadways would be the highest. Ridership on Metra and traffic on U.S. 14 tends to peak earlier than the local road traffic. But single hours that capture a close approximation of the highest overall volume were chosen. The peak hours to be used are 6:30-7:30 AM and 5:00-6:00 PM.

The existing peak hour intersection traffic volumes are shown in Figure 3 of Appendix C.

C. Alternative Transportation Facilities

In addition to the existing roadway network, there are other alternative means of transportation found in the area. As this is a TIS for a proposed commuter rail station, a close transportation alternative is the Metra service along this UP-NW corridor. The current closest station is found in downtown Crystal Lake, which is 2¾ miles to the southeast.

Some short sections of pedestrian sidewalk are present along Country Club Road near Hillside Road and the railroad tracks.

Additionally, existing bicycle facilities are found in the adjacent area. A bike path owned by the McHenry County Conservation District (MCCD) extends eastward from MCC, crossing the south portion of Ridgefield Road and according to the McHenry County Conservation District; this path will ultimately lead into Crystal Lake proper.

III. Proposed Development

A. Proposed Development

The proposed new Metra commuter rail station development at Ridgefield comprised of +/- 17.5 acres is located west of Country Club Road, across from Prairie Drive, north of Ridgefield Road. It will provide a total of 875 parking spaces including 18 handicap spaces. Access to the site will be via a single entrance opposite Prairie Drive.

The updated proposed site layout plan may be found in Appendix B as well as an aerial overview exhibit depicting the site.

The characteristics of traffic expected to be generated by the development are outlined within the Trip Generation and Distribution section of the TIS found below following the Future Conditions analysis. Examination of adjacent Metra stations was made to determine a reasonable estimate for the number of users to be anticipated at the new station. By way of comparison, the parking provided at the adjacent stations is as follows:

Station	**Parking Spaces**
Pingree Road	392 (with an expansion of 350 spaces being added)
Crystal Lake	1,103
Ridgefield	*875 proposed*
East Woodstock	*1,595 proposed*
Woodstock	453

The existing ridership for these adjacent stations is as follows:

Station	Time	Departure Trains		Arrival Trains		Total On	Total Off
		On	Off	On	Off		
Woodstock	AM Peak	186	0	0	0	186	0
	PM Peak	10	0	2	130	12	130
Crystal Lake	AM Peak	431	11	0	0	431	11
	PM Peak	11	2	11	329	22	331
Pingree Road	AM Peak	180	12	0	11	180	23
	PM Peak	7	113	0	198	7	311

AM Peak = 6:30 to 7:30, PM Peak = 5:00 to 6:00

Additionally, in 2000 the proportion of the population who used public transit can be approximated based on census surveys as shown following.

Means of Transportation To Work	Tract 8709.02 Workers	Tract 8711.02 Workers	Percent of Total Tract 8709.02	Tract 8711.02
Car, truck, or van:	2,402	4,528	91%	93%
Public transportation:	55	141	2.1%	2.9%
Total:	2,634	4,876	2.6% average	

B. Site Entrance Sight Distance and Spacing Analysis

Due to the fact that this is a new access, considerations for the geometric requirements must be made. One factor is the availability of sight distance from the proposed entrance location. Based on the proposed location opposite Prairie Drive, there does not appear to be any horizontal or vertical constraints at the entrance location in terms of sight distance analysis. In adherence to the McHenry County *Access Control and Right-of-Way Management Ordinance*, adequate spacing is provided between the site access and adjacent intersections (84 Lumber driveway) to provide the necessary and recommended storage bay and taper lengths.

C. Site Entrance Signal Warrant Analysis

The site full access entrance was reviewed to determine if peak hour signal warrants are met. The peak hour signal warrant for intersections above 40 mph on the major street requires a minimum of 100 vehicles per hour on the minor street approach. Since this requirement is not met for the 2015 Build Condition, although the major street volumes are met, a traffic signal is not warranted. But it does become warranted in 2030.

The Tables found in Appendix F indicate the results of the warrant analyses.

IV. Future Conditions

A. Approach

In order to create an estimate of future conditions with the proposed Metra station, and ultimately trips generated by this station, Patrick prepared a comprehensive multipronged analysis approach. Multiple methodologies were compared in order to arrive at a solution that best fits the anticipated scenarios upon station build-out.

The first step in Patrick's approach involves the creation of an anticipated service area for the proposed station. The McHenry County Planning and Development Department was able to provide information on both the existing and proposed future land uses in the area adjacent to the proposed station. Using this and a careful analysis of the roadway network, an area from which the population of transit commuters is expected to be drawn was determined. Additionally, it was determined that the representative characteristics of this area were well represented by two census tracts covering most of this area. In fact, the two census tracts used are likely a very close proxy for the area to be served by the two proposed Metra stations in this area, Ridgefield and East Woodstock.

Using these census tract areas and the land use plans, the area of land in both existing and proposed conditions devoted to residential uses can be determined. Based on the existing plan and the existing population data available for each census tract, a multiplier indicating the approximate number of residents per acre for each land use can be determined. These multipliers were identified by the McHenry County Planning and Development Department.

The multiplier can then be applied to the future land use plan, providing an estimated future population for the census tract area as well as the station service area.

Therefore, a future population for the service area is available via land use and via a growth factor. These values were compared, and additionally, the proportion of transit riders considered. This was then compared with the parking supply and demand as well as information on existing ridership on the Metra line. Based on all these factors, a level of ridership was projected for the proposed station. This level of ridership is then used to calculate trips generated based on the expected vehicle trips per rider.

Using the future land use map, an idea of where all the traffic will be expected to come from can be formulated. Measuring the areas tributary to each of the station's routes of access allows the trip distribution to be approximated. The trips generated are then distributed across this network and the future additional traffic summed. As described following, this traffic is assigned to the existing roadway network and added to the background traffic volumes present resulting in a projection of future traffic upon build-out of the site (2015 Build). This data is then used as the basis for the future conditions traffic analysis.

B. Background Traffic and Population Growth

The TIS was conducted to incorporate traffic growth to 2015, the design year, using 2009 as the base year. Using the per year growth rate, the 2015 background volumes (2015 No Build) were calculated. Then, the same growth rate was applied to determine 2030 background volumes (2030 No Build). The annual traffic growth rate of 3.0% applied was as per guidance provided in the McHenry County Traffic Impact Study requirements. The background traffic volumes used can be found in Appendix C.

In addition, as noted in the approach section above, an overall projected population growth rate for this area was determined, working with the McHenry County Planning and Development Department. This rate equates to approximately 2.6% growth, and presumes a projected 2030 County population of 495,000. The populations for the census tracts used for this TIS are as shown below.

Comparatively, via the examination of the Future Land Use Plan as compared to the Existing Land Use Plan, population shifts due to land use changes can be projected. This effort presumes the following multipliers for each land use type containing residents, as determined by working with the McHenry County Planning and Development Department:

Land Use Type	Multiplier (pop./ac.)
Residential	9.855
Estate	0.9
Agricultural	0.075

These then inform our ability to estimate the population based on future land use for the census tracts we are working with along with our station's service zone. In Appendix C the zones used for these estimates are depicted in Figure 11.

Total Population Projections

McHenry County, Illinois	**Census Tract 8709.02**	**Census Tract 8711.02**	**Ridgefield Station Service Area**
2000 Total	5,296	9,519	N/A
2009 Projection (U.S. Census)	6,534	11,744	N/A
2009 Projection (County Growth)	6,544	11,762	N/A
2015 Projection (County Growth)	7,375	13,257	N/A
2030 Projection (County Growth)	9,455	16,994	N/A
2030 Projection (Land Use)	58,322	14,685	27,619

C. Trip Generation and Distribution

Based on the methodology outlined above, the trips generated and their distributions can be estimated. Two methods were applied to formulate these estimates. Using the population numbers, and the proportion of the population expected to ride the train, a future number of riders can be approximated. In existing conditions, 2.6% of people use public transit. With the availability of these new stations, it is expected that number will likely increase to approximately 5%. This will produce a ridership as listed below:

Area	**Projected 2030 Population**	**2030 Ridership**
Ridgefield station service area	23,916	1,196 round trips

Using the total round trips above, the ridership during peak hours can be estimated. This is done by comparison to the adjacent station's percent of total riders found in the peak. Further interpretation yields the ridership below as Ridgefield's peak hour.

AM Ridership Peak	PM Ridership Peak
47.4% during peak	41.4% during peak
567	495

In addition, the existing ridership, parking supply, and parking utilization rates for the Metra line can be examined to produce a future ridership estimate based only on station capacity of ridership and expected passengers typical for the line. These calculated lot utilization rates along with the existing ridership numbers and historical trip generation and pickup/drop-off rates were made available by Metra from a study previously conducted by URS, shown in Appendix H. Using the Ridgefield station's 875 available spaces, and calculating based on the average utilizations from two adjacent stations (Crystal Lake and

Pingree Road), a ridership level can be estimated for the Ridgefield station. A summary of these calculations can be found in Appendix C. Based on these analyses of the existing ridership, an estimated ridership based on these factors for the proposed station was prepared.

Year	Woodstock[1]	East Woodstock[2]	Ridgefield[2]	Crystal Lake[1]	Pingree Road[1]
2009*	186 (181)	N/A	N/A	629 (594)	295 (245)
Future			577 (510)		

= 6:30 to 7:30 AM ridership, (#) = 5:00 to 6:00 PM ridership, 1 = Existing Metra Station, 2 = Proposed Metra Station
*Values shown may not be each station's actual peak. Where necessary overall peak hours were used in calculations.

Examining these two methodologies, it can be seen that the results are very similar. This gives assurance that the ridership estimates are in good proximity to the reality we can currently project. Patrick is most comfortable with using the following future ridership projections based on the like station comparables:

Station	Time	Departure Trains		Arrival Trains		Total On	Total Off
		On	Off	On	Off		
Ridgefield	AM Peak	554	11	0	12	554	23
	PM Peak	12	2	2	494	14	496

Using the latter methodology, the ridership can be used to estimate the trips generated. This is also based on the historical vehicle trips per rider, as calculated by Metra. The trip generation estimates are all also summarized in a table in Appendix C. The overall expected trips generated by the Ridgefield Metra station are as follows:

Trip Generation				
Year	Ridgefield AM Peak In	Ridgefield AM Peak Out	Ridgefield PM Peak In	Ridgefield PM Peak Out
2009	N/A	N/A	N/A	N/A
Future	458	69	60	398

Trip distribution is also calculated via the Land Use Plan. Based on the proportion of land use types in each tributary direction within the service area, the future estimated population within these zones can be estimated. Thus, a distribution split amongst the entire area can be determined. The results of this calculation and a figure showing the percent of riders approaching the station from each direction based on their distribution according to the land use plan is detailed in Appendix C and listed below.

Trip Distribution		
To/From	**Percent Distribution**	
West on McConnell Road	4.9%	35.8%
North on Country Club Road	12.7%	
Locally generated traffic north on Country Club Rd.	18.2%	
East on Hillside Road	41.8%	41.8%

Ridgefield (north) [East on U.S. 14]	3.2%	22.4%
Ridgefield (south) [West on U.S. 14]	5.2%	
Locally generated traffic south on Country Club Rd.	1.0%	
West on Lucas Road	13.0%	
Total	*100%*	

D. Future Build Traffic

The future 2015 and 2030 Build conditions were modeled with the generated trips assigned as per the distributions. Figures are provided in Appendix A displaying the Build traffic volumes.

E. Roadway Improvements

The Illinois Department of Transportation is planning to widen U.S. 14 from its current two-lane geometry to a four-lane roadway with a center median from north of IL 176 to Lake Shore Drive. At the U.S. 14 and Ridgefield Road South intersection, separate turn lanes will be provided on all approaches including a westbound U-turn lane and two through lanes in each direction on U.S. 14. At the U.S. 14/Lucas Road-Tartan Drive intersection an additional through lane will be included for the U.S. 14 eastbound and westbound approaches. In addition, the existing eastbound and westbound left turn lanes will be extended to provide additional storage. At the U.S. 14 and Ridgefield Road North intersection separate turn lanes will be provided on all approaches including a westbound U-turn lane and two through lanes in each direction on U.S. 14. At this time it is unknown when these improvements to U.S. 14 will be incorporated. Therefore, the 2015 Build analyses include evaluation of two separate alternatives for with U.S. 14 improvements and without U.S. 14 improvements.

It is worth noting that there are several upgrades potentially needed in the immediately local area warranted on the basis of the existing traffic and/or background traffic growth alone. The existing and future intersection lane configurations are shown in Figure 10 within Appendix C. Table 1 summarizes the results of the queue analyses, which were utilized to determine the storage and taper lengths listed in Table 2, and Table 3 illustrates the results of the capacity analyses and lane additions for each scenario. These capacity and queue analyses as outlined later in this report were the basis for the recommended improvements listed as follows:

2009 NO BUILD EXISTING CONDITION RECOMMENDATIONS

Although no geometric improvements were incorporated into the capacity analyses for the No Build-Existing condition, a number of improvements are recommended to accommodate existing and near-term background traffic and are listed following:

- A traffic signal at the Country Club Road/Hillside Road intersection is warranted and should be provided.

- A traffic signal at the Country Club Road-Market Street/Ridgefield Road intersection is warranted and should be provided.
- Railroad preemption should be included for the proposed traffic signals at the Country Club Road/Hillside Road and Ridgefield Road/Country Club Road-Market Street intersections. This will ensure that traffic signals for approaches to the tracks will turn to red and traffic signals on departures from the tracks will turn green to allow traffic to safely clear the tracks when a train is crossing Country Club Road.
- The Railroad Street approaches to Country Club Road should be restricted to right-in/right-out operation. A raised curb median on each Railroad Street approach should be provided, with adequate deflection, to prevent illegal left-turn movements.
- Several intersections would be well served with additional turn lanes. These locations are as follows:
    - At the Country Club Road/Hillside Road intersection, a westbound right turn lane and northbound right turn lane.
    - At the Country Club Road/Ridgefield Road intersection, a westbound right turn lane, an eastbound left turn lane (with corresponding westbound left), and a southbound left turn lane.
    - At the Ridgefield Road (south)/U.S. 14 intersection, a westbound right turn lane.
    - At the McConnell Road/Country Club Road intersection, a southbound right turn lane.

The existing width of Country Club Road between Hillside Road and the railroad tracks is 36-feet and 60-feet of ROW is reserved. The recommended improvements will require roadway widening to a maximum width of 48-feet within this roadway segment. Provision for 5-feet of sidewalk with a 3-foot buffer leaves only 4-feet of ROW, indicating that some additional ROW could be needed in this area.

2015 NO BUILD CONDITION RECOMMENDATIONS

Based only on the projected background traffic growth expected to occur by 2015, further additional geometric improvements are necessary to accommodate the new traffic.

- At the Country Club Road/Hillside Road intersection, a southbound left turn lane.
    - As indicated on the storage recommendation table, an approximately 240-foot storage bay is recommended with a 155-foot taper shared with the northbound left-turn lane accessing the 84 Lumber site (which should be partially reduced to provide a 125-foot storage bay). Therefore, back-to-back left-turn lanes will be provided maximizing the available distance between intersections.

- At the McConnell Road/Country Club Road intersection, a northbound left turn lane and an eastbound right turn lane should be added. Adequate ROW is available to incorporate this improvement.
- At the Ridgefield Road (north)/U.S. 14 intersection, an eastbound left turn lane or a bypass lane.

2015 BUILD CONDITION RECOMMENDATIONS

To accommodate the proposed station development the following recommendations, in addition to those outlined above, should be incorporated to accommodate projected site generated traffic volumes:

- At the Country Club Road/Prairie Drive (station entrance) intersection a stop sign should be provided on the eastbound approach.
- A traffic signal at the U.S. 14/Lucas Road-Tartan Drive intersection is warranted and should be provided.
- Installation of a traffic signal at the Ridgefield Road/Tartan Drive intersection is warranted, however acceptable intersection operations are provided with existing stop sign control, therefore it is not recommended at this time.
- The proposed station entrance at Country Club Road/Prairie Drive will need turn lane improvements as follows:
  - A northbound left turn lane, southbound left turn lane, southbound right turn lane, and eastbound left turn and right turn lanes from the new entrance.
    - With the proposed northbound left-turn lane accessing the site (145-foot storage bay, 175-foot taper) and the existing southbound left-turn lane (115-foot storage remaining) to the cul-de-sac roadway opposite the 84 Lumber site access, a back-to-back left-turn lane configuration will be provided.
- It is recommended that the existing bicycle facilities be expanded. The MCCD bike path east of the college should be extended to the station location to allow alternative means of access to the proposed station. Additionally, sidewalk should be extended such that a pedestrian path is available from Ridgefield Road to the station entrance along Country Club Road.
- No further improvements for U.S. 14 are deemed necessary at this time, whether IDOT completes its anticipated improvements or not, other than the right turn lane cited above at the Ridgefield (south) intersection, the left turn lane at the Ridgefield (north) intersection, and the signalization of the U.S. 14/Lucas Road-Tartan Drive intersection.

2030 BUILD CONDITION RECOMMENDATIONS

In addition to the 2015 Recommendations, the following should be provided in 2030 (or when traffic warrants):

- Country Club Road/Prairie Drive (site entrance) will warrant a traffic signal by 2030 if projected traffic growth is met. Due to the uncertainty in the amount of long-term traffic growth, traffic signal warrants for this intersection should be reevaluated once the area is more fully developed.
- A traffic signal at the Country Club Road/McConnell Road intersection is warranted and should be provided.
- A traffic signal at the Ridgefield Road/Tartan Drive intersection is recommended. Alternatively, consideration for relocation from Tartan Drive's current terminus at Ridgefield Road to the Market Street/Country Club Road location could be made.
- Certain intersections would be well served with further additional turn lanes beyond those already provided. These locations are as follows:
    - At the Ridgefield Road/Tartan Drive intersection, a northbound right turn lane and a westbound left turn lane.
    - At the Ridgefield Road (south)/U.S. 14 intersection, separate southbound left turn and right turn lanes.
    - At the Ridgefield Road (north)/U.S. 14 intersection, separate westbound left turn and right turn lanes.
    - No ROW concerns are anticipated for these intersections.

Improvements needed based on the 2015 Build and 2030 No Build conditions are sufficient to accommodate the site generated traffic, and thus the above 2030 Build improvements are the results of the additional background traffic growth through 2030. It is presumed the U.S. 14 improvements by IDOT will have been completed by 2030, and so those separate improvements are not listed above. Recommendations outlined above adhere to the McHenry County *Access Control and Right-of-Way Management Ordinance*. It should be noted that proposed signals on Country Club Road will be spaced approximately 540 feet and 1130 apart between Ridgefield Road and Hillside Road and Hillside Road and Prairie Drive-Site Access, respectively. In addition to the recommendations outlined within this section, Section VI. Includes potential alternatives that result in increased traffic signal spacing.

V. Capacity & Queue Analyses

Capacity and queue length analyses were performed for the weekday morning and afternoon peak hours at the study intersections for existing conditions and for four future conditions. Highway Capacity Software (HCS) was utilized to provide the basis for the capacity and queue length analyses. Considering many of the study area roadways are diagonal, for analysis purposes, U.S. 14 was analyzed as an east-west route and Country Club Road and Ridgefield Road are assumed to be north-south routes. However, Country Club Road-Market Street is assumed to be an east-west route at Ridgefield Road and Ridgefield Road is assumed to be an east-west route at Tartan Drive. HCS Reports can be found in Appendix E

Improvements incorporated for future scenarios are identified in the recommendations section of this report. Again, below the results of the queue length analyses and capacity analyses are summarized in Table 1 and Table 3, respectively.

Table 1. 2015 Build Scenario 1 Queue Analysis Summary

Intersection	NBL	NBT	NBR	EBL	EBT	EBR	SBL	SBT	SBR	WBL	WBT	WBR
U.S. 14 & Ridgefield Road South	-	-	-	-	708	-	-	478	-	-	948	-
U.S. 14 & Lucas Road-Tartan Drive	-	163	-	33	568	-	-	163	-	23	793	-
U.S. 14 & Ridgefield Road North	-	-	-	9	-	-	-	74	-	-	-	-
Ridgefield Road & Tartan Drive	-	80	-	-	-	-	-	-	-	-	3	-
Ridgefield Road & Country Club Road-Market Street	-	10	-	115	58	-	270	55	-	18	48	408
Country Club Road & Hillside Road	-	310	-	-	-	-	243	275	-	180	-	350
Country Club Road & Prairie Drive-Metra Access	52	-	-	189	64	-	-	-	-	-	7	-
Country Club Road & McConnell Road	11	-	-	105	-	15	-	-	-	-	-	-

Note: Higher of AM and PM Peak Queue listed and shared left-turn/right-turn lane queues listed under the through lane; NBL = Northbound Left-turn, NBT = Northbound Through, NBR = Northbound Right-turn, EBL = Eastbound Left-turn, EBT = Eastbound Through, EBR = Eastbound Right-turn, SBL = Southbound Left-turn, SBT = Southbound Through, SBR = Southbound Right-turn, WBL = Westbound Left-turn, WBT = Westbound Through, WBR = Westbound Right-turn

Table 2. Storage and Taper Recommendations

Intersection	NBL	NBR	EBL	EBR	SBL	SBR	WBL	WBR
U.S. 14 & Ridgefield Road South	-	-	185'/200' (2030)	-	-	215'/220' (2030)	-	185'/200' (2015)
U.S. 14 & Lucas Road-Tartan Drive	-	-	N/A	-	-	-	N/A	-
U.S. 14 & Ridgefield Road North	-	-	240'/240' (2015)	-	-	265'/265' (2030)	-	-
Ridgefield Road & Tartan Drive	-	125'/155' (2030)	-	-	-	-	215'/220' (2030)	-
Ridgefield Road & Country Club Road-Market Street	100'/135' (2015)	215'/220' (2015)	-	-	250' (2015) TWLTL	-	100'/135' (2015)	-
Country Club Road & Hillside Road	-	100'/135' (2015)	-	-	240'/155' (2015)	-	-	125'/155' (2015)
Country Club Road & Prairie Drive-Metra Access	145'/175' (2015)	-	200'/135' (2015)	-	215'/220' (2015)	215'/220' (2015)	-	-
Country Club Road & McConnell Road	240'/240' (2015)	-	-	215'/220' (2015)	240'/240' (2015)	-	-	-

NBL = Northbound Left-turn, NBR = Northbound Right-turn, EBL = Eastbound Left-turn, EBR = Eastbound Right-turn, SBL = Southbound Left-turn, SBR = Southbound Right-turn, WBL = Westbound Left-turn, WBR = Westbound Right-turn, Note: XX/XX = Storage/Taper Lengths, TWLTL – Two-way Left-turn Lane, (XXXX) = Year Recommended Improvement should be provided by

Table 3. Capacity Analysis Summary

Intersection Approach	2009 Existing Condition				2015 No Build Condition				2015 Build Condition – Scenario 1 (Without U.S. 14 Widening)				2015 Build Condition – Scenario 2 (With U.S. 14 Widening)				2030 Build Condition			
	Level-of-Service		Delay (sec.)		Level-of-Service		Delay (sec.)		Level-of-Service		Delay (sec.)		Level-of-Service		Delay (sec.)		Level-of-Service		Delay (sec.)	
Geometry	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
U.S. 14 (East-West) & Ridgefield Road South (North-South)																				
Southbound																				
Approach	C	D	32.0	42.5	D	D	39.4	47.8	D	D	40.9	52.3	D	D	40.6	52.0	D	D	46.1	42.4
Left													D	D	40.7	52.1	D	D	46.3	42.5
Right													C	C	23.3	33.7	B	C	15.4	21.1
Eastbound																				
Approach	B	A	10.7	9.9	B	B	13.3	11.7	B	B	13.4	11.7	A	A	8.0	7.7	B	B	11.1	10.9
Left													A	A	6.0	5.9	A	A	7.1	7.3
Through													A	A	8.0	7.7	B	B	11.1	10.9
Through																				
Westbound																				
Approach	D	C	48.7	28.2									A	A	5.8	5.9	A	A	8.7	8.9
Through													A	A	8.3	8.2	B	B	12.3	12.3
Through					B	B	17.1	15.0	B	B	17.1	15.0								
Right					A	A	0.1	0.1	A	A	0.1	0.1	A	A	0.1	0.1	A	A	0.1	0.1
Overall Intersection	**C**	**C**	**33.8**	**23.7**	**B**	**B**	**16.2**	**15.5**	**B**	**B**	**16.3**	**16.3**	**B**	**B**	**11.2**	**12.3**	**B**	**B**	**14.5**	**13.7**
U.S. 14 (East-West) & Lucas Road-Tartan Drive (North-South)																				
Northbound																				
Approach	C	F	24.4	76.8	D	F	32.4	287.6	C	D	25.6	36.6	C	D	25.6	36.6	C	D	26.3	37.9
Southbound																				
Approach	C	F	22.7	91.5	D	F	30.3	719.1	C	D	23.7	36.6	C	D	23.7	36.6	C	D	23.7	37.7
Eastbound																				
Left	A	A	8.3	9.3	A	A	8.5	9.9	A	A	6.1	7.0	A	A	6.1	6.6	A	A	6.2	7.8
Through													A	A	7.7	7.4	A	A	8.7	8.2
Through/Right									B	B	11.6	10.0								
Westbound																				
Left	A	A	8.8	8.8	A	A	9.2	9.2	A	A	6.1	6.4	A	A	6.1	6.3	A	A	6.2	6.7
Through													A	A	7.1	7.9	A	A	7.6	9.0
Through/Right									A	B	8.7	12.7								
Overall Intersection									**B**	**B**	**11.9**	**14.4**	**A**	**B**	**9.4**	**11.2**	**A**	**B**	**9.9**	**12.1**
U.S. 14 (East-West) & Ridgefield Road North (North-South)																				
Southbound																				
Approach	B	C	12.2	22.2	B	E	13.3	37.9	B	E	13.8	39.4	B	C	10.8	16.8	B	E	12.2	38.0
Left													C	E	23.3	43.6	E	F	39.6	174.1
Right													B	B	10.4	12.7	B	C	11.6	16.6
Eastbound																				
Approach	A	B	8.4	10.2	A	B	8.7	11.0	A	B	8.8	11.0								
Left													A	B	8.8	11.4	A	C	9.8	15.3
Westbound	No Level-of-Service to Report																			

Capacity Analysis Summary (Cont.)

Intersection Approach	2009 Existing Condition				2015 No Build Condition				2015 Build Condition – Scenario 1 (Without U.S. 14 Widening)				2030 Build Condition			
	Level-of-Service		Delay (sec.)		Level-of-Service		Delay (sec.)		Level-of-Service		Delay (sec.)		Level-of-Service		Delay (sec.)	
Geometry	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Ridgefield Road (East-West) & Tartan Drive (North-South)																
Northbound																
Approach	B	C	12.1	17.0	B	C	13.2	22.5	C	D	15.6	25.0	C	C	25.0	28.0
Left													C	C	25.0	28.8
Right													C	C	23.3	24.1
Eastbound																
Approach																
Through													A	A	8.1	7.9
Right													A	A	0.0	0.1
Westbound																
Approach	A	A	8.1	8.2	A	A	8.3	8.4	A	A	8.3	8.6				
Left													A	A	6.3	6.4
Through													A	A	7.3	8.5
Overall Intersection													**A**	**A**	**8.3**	**10.2**
Ridgefield Road (North-South) **& Country Club Road-Market Street (**East-West)																
Northbound																
Approach	A	A	7.4	7.3	B	B	14.1	15.9	B	B	14.1	15.9	B	B	14.2	16.0
Southbound																
Approach	A	A	7.9	7.9	A	A	7.2	9.5	A	B	7.3	11.1	A	B	9.9	17.2
Left					A	A	7.2	9.6	A	B	7.3	11.5	B	B	10.6	18.8
Through/Right	D	F	33.7	385.8	A	A	7.1	8.7	A	A	7.1	8.8	A	A	7.3	9.0
Eastbound																
Approach	C	C	15.4	19.2	B	B	16.7	18.3	B	B	16.9	18.3	B	B	17.2	19.1
Left					B	B	16.8	18.8	B	B	17.1	18.8	B	B	17.5	19.9
Through/Right					B	B	16.5	17.3	B	B	16.5	17.3	B	B	16.7	17.7
Westbound																
Approach					B	B	10.1	13.0	A	B	9.9	13.4	B	C	10.6	24.6
Left					B	B	16.2	16.8	B	B	16.1	16.8	B	B	16.2	16.9
Through/Right					B	B	16.9	16.9	B	B	16.9	16.9	B	B	17.2	17.1
Right					A	B	7.5	12.6	A	B	8.3	13.0	A	C	8.8	25.5
Overall Intersection					**A**	**B**	**8.9**	**12.5**	**A**	**B**	**9.2**	**13.2**	**B**	**C**	**10.9**	**20.7**

Capacity Analysis Summary (Cont.)

Intersection Approach	2009 Existing Condition				2015 No Build Condition				2015 Build Condition – Scenario 1 (Without U.S. 14 Widening)				2030 Build Condition			
	Level-of-Service		Delay (sec.)		Level-of-Service		Delay (sec.)		Level-of-Service		Delay (sec.)		Level-of-Service		Delay (sec.)	
Geometry	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Country Club Road (North-South) & Hillside Road (East-West)																
Northbound																
Approach					A	A	6.0	6.2	A	A	7.0	6.4	A	A	7.4	5.8
Through					A	A	7.3	8.8	A	A	8.0	8.9	A	A	8.5	8.1
Right					A	A	0.0	0.0	A	A	0.0	0.0	A	A	0.0	0.0
Southbound																
Approach	A	A	7.9	8.9	A	A	7.9	7.9	A	B	8.1	10.3	A	B	9.1	15.6
Left					A	A	7.3	7.6	A	B	7.9	12.9	A	C	8.9	29.9
Through					A	A	8.1	8.0	A	A	8.2	8.6	A	A	9.1	7.9
Westbound																
Approach	C	E	16.3	46.4	C	C	24.0	25.5	C	C	34.1	25.8	D	D	37.7	36.6
Left					C	C	24.2	25.6	C	C	24.2	25.6	C	C	25.0	34.6
Right					C	C	23.8	25.4	D	C	37.4	26.1	D	D	43.3	38.6
Overall Intersection					**B**	**B**	**10.4**	**11.1**	**B**	**B**	**15.7**	**11.9**	**B**	**C**	**16.6**	**15.9**
Country Club Road (North-South) & Metra Site Access-Prairie Drive (East-West)																
Northbound																
Approach													C	C	21.0	33.1
Left									B	A	12.2	8.3	D	A	36.0	9.0
Through/Right													A	C	4.3	34.5
Southbound																
Approach													B	B	19.1	12.4
Left									A	A	7.7	8.7	A	A	9.3	8.1
Through													C	B	21.4	12.6
Right													B	A	10.8	8.1
Eastbound																
Approach									E	F	44.4	50.8	C	B	27.0	18.0
Left									F	F	101.0	113.1	C	B	26.6	16.4
Through/Right									B	C	14.6	15.8	C	B	27.2	18.9
Westbound																
Left/Through/Right									F	D	59.5	31.3	C	B	25.9	14.1
Overall Intersection													**C**	**C**	**20.3**	**23.2**
Country Club Road (North-South) and McConnell Road (East-West)																
Northbound																
Approach	A	A	8.4	8.3									A	A	7.1	9.3
Left					A	A	8.7	8.5	A	A	9.0	8.6	A	A	6.8	8.3
Through													A	A	7.1	9.6
Southbound																
Approach													A	A	6.9	6.5
Through													A	A	9.2	8.1
Right													A	A	0.0	0.0
Eastbound																
Approach	C	D	18.5	26.0	C	D	16.3	29.0	C	E	18.4	40.6	C	C	27.5	26.3
Left					C	E	20.6	46.7	C	F	24.4	69.9	C	C	26.3	26.0
Right					B	B	12.2	11.2	B	B	13.9	11.3	C	C	28.5	26.5
Overall Intersection													**B**	**B**	**11.7**	**11.4**

Under existing conditions, study intersections are generally operating at an acceptable Level-of-Service (LOS) during the weekday morning and afternoon peak hours. However, channelization is currently needed at a number of intersections to improve safety along high speed two-lane routes. Some minor street approaches under stop control are experiencing an unacceptable LOS. In particular, the Country Club Road and Hillside Road intersection's westbound approach and the Country Club Road-Market Street and Ridgefield Road intersection's southbound approach are experiencing noticeable queues during the weekday afternoon peak hour.

Under 2015 No Build conditions, study intersections operate similar to existing conditions. Although, with the addition of traffic signals at the Country Club Road and Hillside Road and Country Club Road-Market Street and Ridgefield Road intersections, better than acceptable LOS is provided during the peak hours. The southbound approach of Ridgefield Road (north) at U.S. 14 and the McConnell Road eastbound approach at Country Club Road operate at an unacceptable LOS during the afternoon peak hour. However, vehicle queues are nominal.

Under 2015 Build conditions, study intersections are generally operating at an acceptable LOS during the weekday morning and afternoon peak hours. Similar to 2015 No Build conditions, the southbound approach of Ridgefield Road North at U.S. 14 and the McConnell Road eastbound approach at Country Club Road operate at an unacceptable LOS during the afternoon peak hour. However, vehicle queues are nominal.

Under 2015 Build conditions with U.S. 14 widening, operations at the U.S. 14 intersections will be improved upon from 2015 Build conditions when the IDOT widens U.S. 14 from two lanes to four lanes with a center median through the study area.

Under 2030 Build conditions, all study intersections operate at an acceptable LOS with the exception of the southbound approach of Ridgefield Road North at U.S. 14 continuing to operate at an unacceptable LOS during the afternoon peak hour. Again, vehicle queues are nominal. With the addition of a traffic signal at the Country Club Road and McConnell Road intersection, the eastbound approach is now provided with an acceptable LOS.

Traffic Signal Warrants

There are several intersections that warrant signalization, both in the No Build and Build conditions. These locations were identified above and the calculations for these analyses are found in Appendix F.

VI. Conclusions and Recommendations

As outlined above, in Section IV. E, some improvements are necessary to mitigate the impact of the site's generated traffic.

Improvements Currently Needed

The analysis contained herein indicates that the existing traffic will require several improvements to provide a transportation network with acceptable operation in the surrounding area in the near future. These improvements outlined above should likely be made regardless of whether the station is built.

Improvements Needed to Accommodate 2015 Traffic

Further improvements and considerations will become necessary by 2015 (listed under 2015 No Build Condition Recommendations) to accommodate the growing traffic in the area even without the station build-out.

Improvements Needed to Accommodate 2030 Traffic

Evaluation of improvements and considerations should be revisited prior to 2030 to ensure the transportation network operates efficiently if the study area experiences significant growth in the future as projected. However, it is anticipated that background traffic will necessitate further improvements.

Improvements Needed to Accommodate Site Traffic

Improvements in 2015 (listed under 2015 Build Condition Recommendations) become necessary if the site traffic is to be accommodated on the local roadway network. No further improvements beyond these previously identified are anticipated in 2030 to accommodate site traffic. Those improvements listed under 2030 above would be warranted based on background traffic growth alone. These 2015 improvements are thus the crux of the needs created by the proposed commuter rail station.

Proposed Improvement Alternatives

In evaluating the improvements, it is also recommended that alternative solutions be considered. With potential ROW constraints on Country Club Road near the at-grade railroad crossing, potential alternatives listed following should be considered, if the recommended improvements cannot be provided due to high costs, physical constraints, or lack of feasibility:

- Although not included in this study, an alternative has been presented that includes closure of the existing Country Club Road at-grade railroad crossing and provision for a new crossing located on the northwest portion of the site

with a collector road extending south through the site, crossing the tracks to connect to Ridgefield Road near the MCC Regional Sports Center.

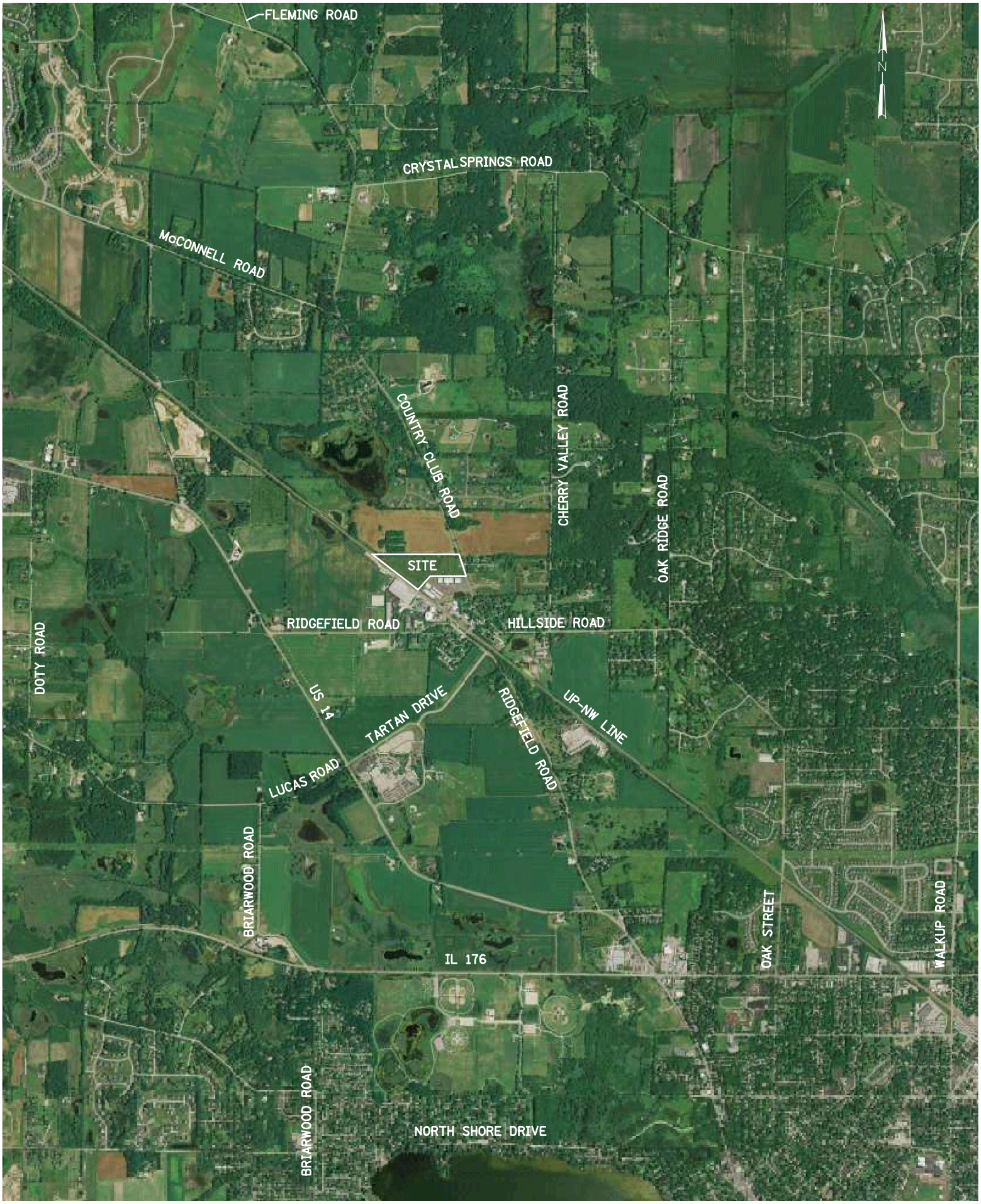
- In addition, extension of Tartan Drive across the railroad tracks to form a tee intersection with Railroad Street and Waller Street could be evaluated.
- At the Country Club Road and Hillside Road intersection, evaluation of a single lane modern roundabout could be performed. Providing a roundabout would require more widening at the intersection itself, however, turn lanes would not be required and less ROW would be required along Country Club Road and Hillside Road.

Conclusion

With all the improvements specified, the area traffic should be provided with acceptable operation in the future, and progression and safety along the local roadway corridors will be improved. In comparison to the projected background growth anticipated, the proposed station development generated traffic will represent a small proportion of future traffic growth. Therefore, the development of the site can be incorporated with reasonable improvements to the external roadway network, as outlined within this TIS.

Appendix A Omitted However Can Be Provided Upon Request

Appendix B



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LOCATION MAP

(NOT TO SCALE)

FIGURE 1

Illinois Professional Design Firm # 184-000108
SEC GROUP, INC.
Smith Engineering Consultants • SEC Automation • SEC Planning
4500 Prime Pkwy, McHenry, IL 60050-2136
t. 815.385.1778 f. 815.385.1781
www.secgroupinc.com engineering@secgroupinc.com

COMP. FILE: 070689-Con13.dwg
VIEW: Concept

Prop. Storm Water Management Easement Basin "C" (W/Native Plantings)

Prop. Storm Water Management Easement BASIN "A" (W/Native Plantings) 0.929 Ac.

Prop. Septic Area

INFILTRATION STONE TRENCH

1817.26'

CITY OF CRYSTAL LAKE

Country Club Road

100' R.O.W.

441.99'

TO-HARBSTOCK (OUT BOUND)

PROP. 8' P.C.C. SIDEWALK

WARMING SHELTER

123.95'

Prop. Storm Water Management Easement Basin "B" (Infiltration Release w/drywells & Native Plantings) (DETENTION FOR METRA)

EMERGENCY OVERFLOW PIPE

779.09'

INFILTRATION STONE TRENCH

Bio Retention \ Bio Swales Native Plantings

BIKE RACK AREA

DEPOT

PROP. PLATFORM

PROP. PLATFORM

PROP. 8' P.C.C. SIDEWALK

PROP. 8' P.C.C. SIDEWALK

STONE TRENCH

INFILTRATION STONE TRENCH

364.56'

Prop. Storm Water Management Easement Basin "B" (Infiltration Release w/drywells & Native Plantings)

Bio Retention \ Bio Swales Native Plantings

WARMING SHELTER

Union Pacific Railroad

TO CHICAGO (IN BOUND)

GRAPHIC SCALE

60 0 30 60 120

(IN FEET)
1 inch = 60 ft.

Hatch Legend:

- PERVIOUS CONCRETE PAVEMENT
- CONVENTIONAL BITUMINOUS PAVEMENT
- WETLAND / NATIVE PLANTINGS
- STORMWATER MANAGEMENT EASEMENT FOR THE CITY OF CRYSTAL LAKE.

general notes:

BASINS A & B ARE ASSUMED TO OUTLET INTO THE COUNTRY CLUB ROAD DITCHLINE AS WELL AS INFILTRATION RELEASE.

IF BASIN C CAN NOT BE PIPED TO COUNTRY CLUB ROAD DITCHLINE THEY WILL BECOME INFILTRATION BASINS & SHALL INCREASE IN SIZE BASED ON FUTURE GEOTECHNICAL INVESTIGATION TO DETERMINE PREDICTED INFILTRATION RATES.

Overall Site Data:

* TOTAL GROSS AREA = 17.504 AC.±
* DETENTION AREAS = 5.428 AC. BASIN A, B & C
* LOT 1 (METRA) = 17.352 AC.
* PROPOSED COUNTRY CLUB ROAD DEDICATION = 0.152 AC.

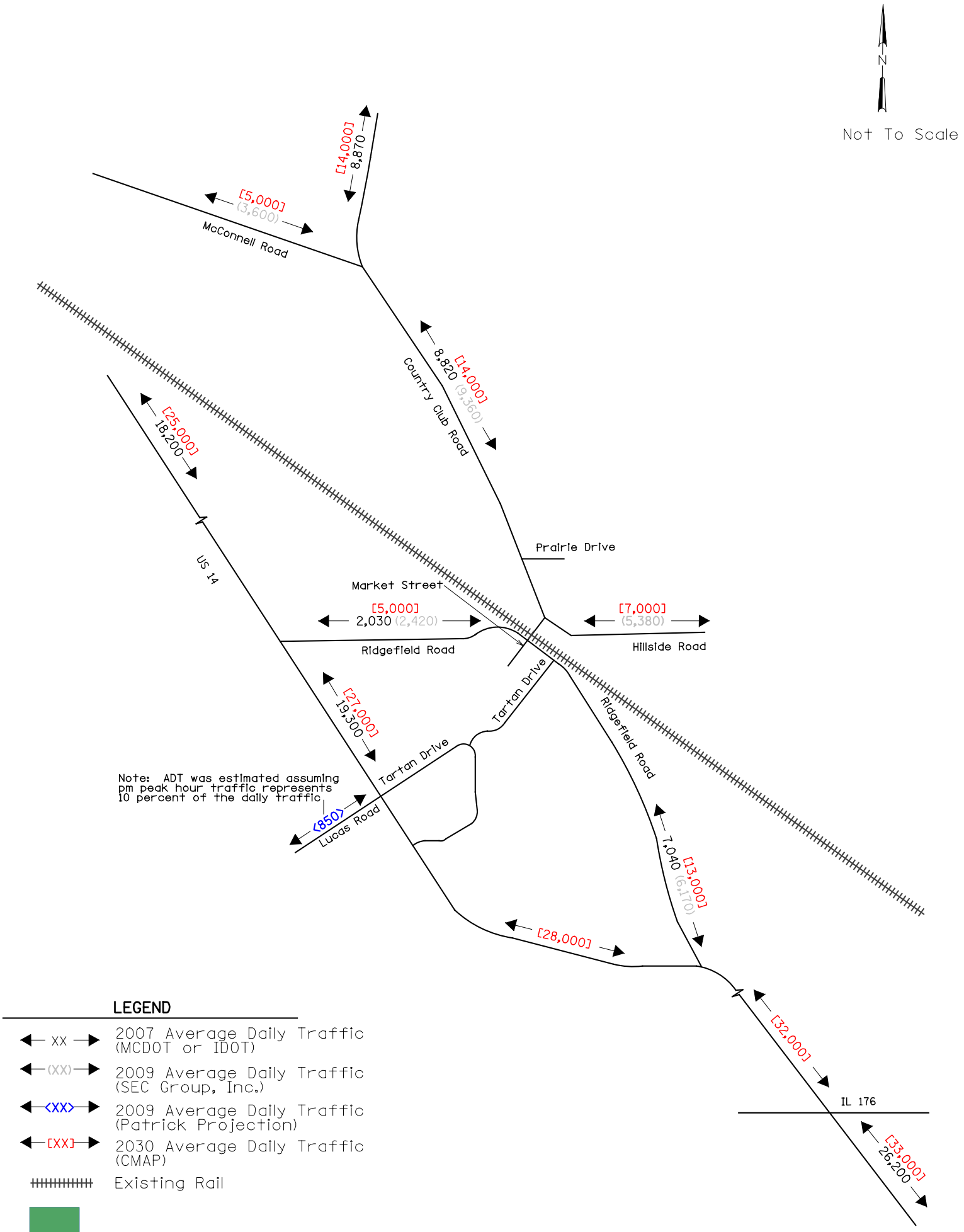
Proposed Parking Lot Site Data:

* NUMBER OF REGULAR PARKING STALLS (ENVIRONMENTAL DESIGN): 857
* NUMBER OF HANDICAP STALLS: 18
* TOTAL NUMBER OF STALLS (ENVIRONMENTAL DESIGN): 875
* TYPICAL PARKING WIDTH: 8.5'
* TYPICAL PARKING LENGTH: 18'
* TYPICAL ACCESS ISLE WIDTH: (24.0' TYP.)
* TYPICAL PARKING ISLE WIDTH: (24.0' TYP.)

Ridgefield Train Station
Ridgefield, Illinois
CONCEPT PLAN 13

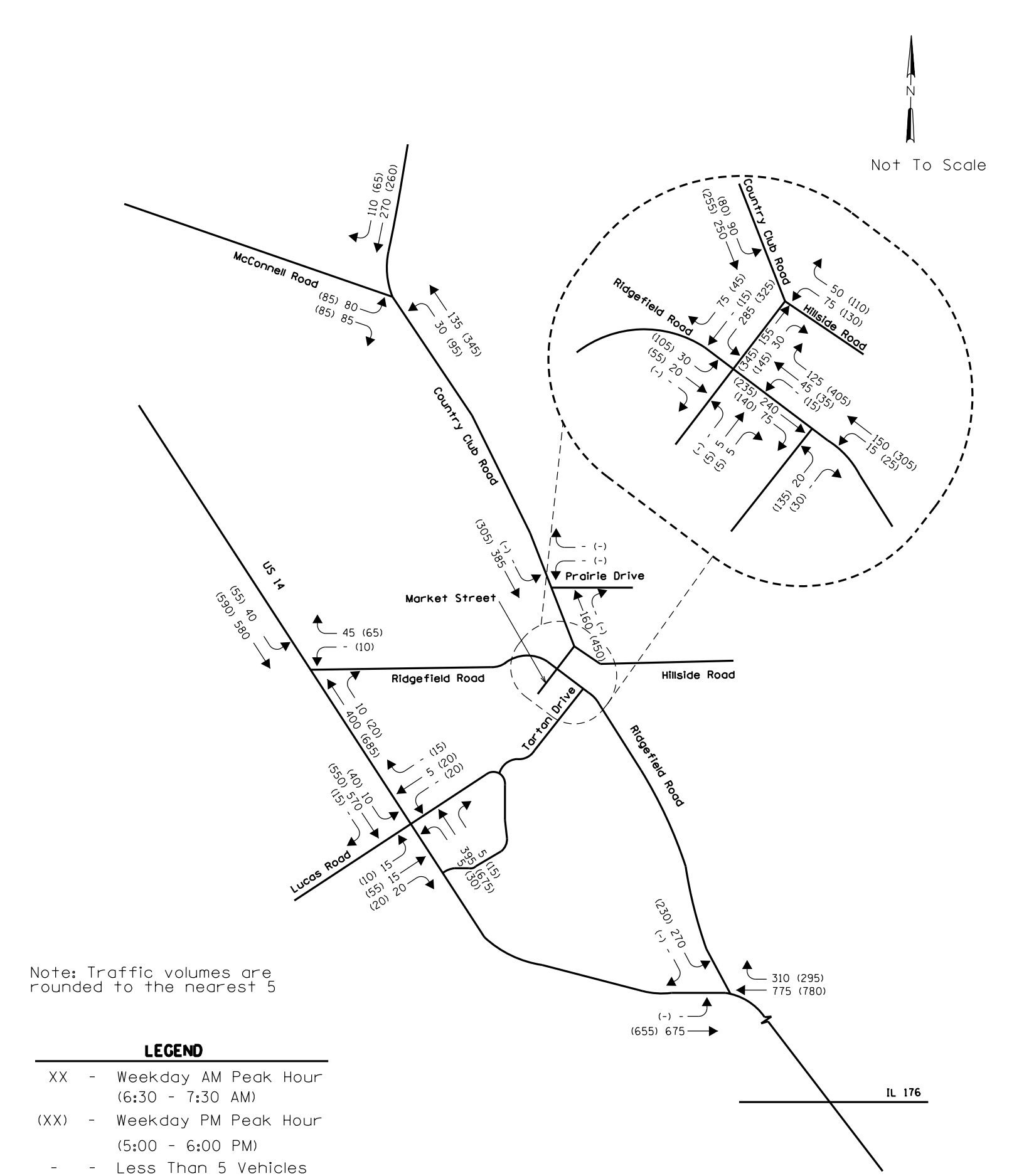
REVISIONS			DWN BY:	INT:	DATE:	PROJECT NO.
1.			MPL		10-07-09	METR-070689
2.			DSN BY:	INT:	HORIZ SCALE:	SHEET NO.
3.			MPL \ KAH		1" = 60'	
4.			CHK BY:	INT:	VERT SCALE:	CON 13
5.			KAH		----	

Appendix C



Average Daily Traffic

FIGURE 2



Note: Traffic volumes are rounded to the nearest 5

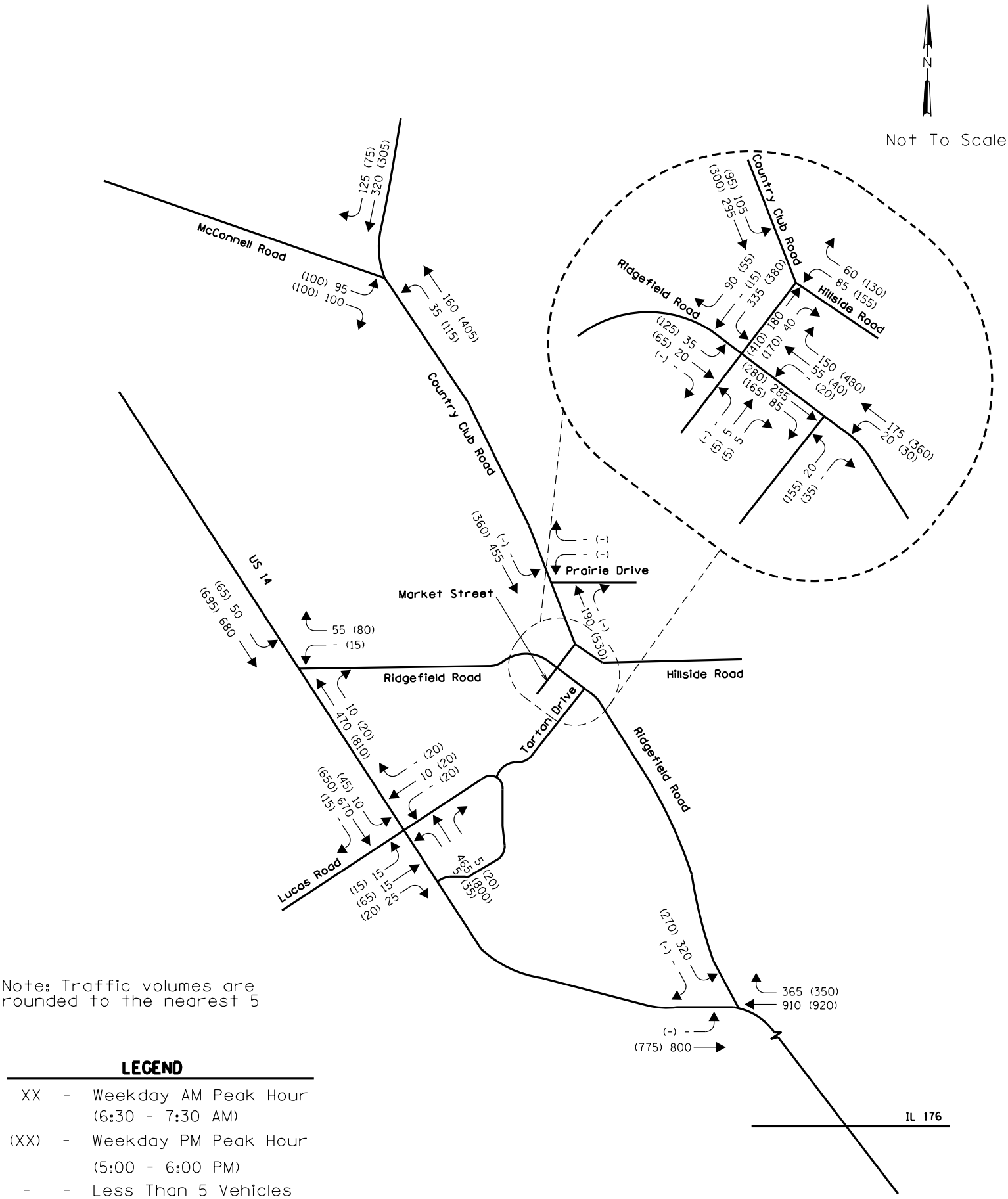
LEGEND

XX	-	Weekday AM Peak Hour (6:30 - 7:30 AM)
(XX)	-	Weekday PM Peak Hour (5:00 - 6:00 PM)
-	-	Less Than 5 Vehicles

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Existing Traffic Volumes

FIGURE 3



Note: Traffic volumes are rounded to the nearest 5

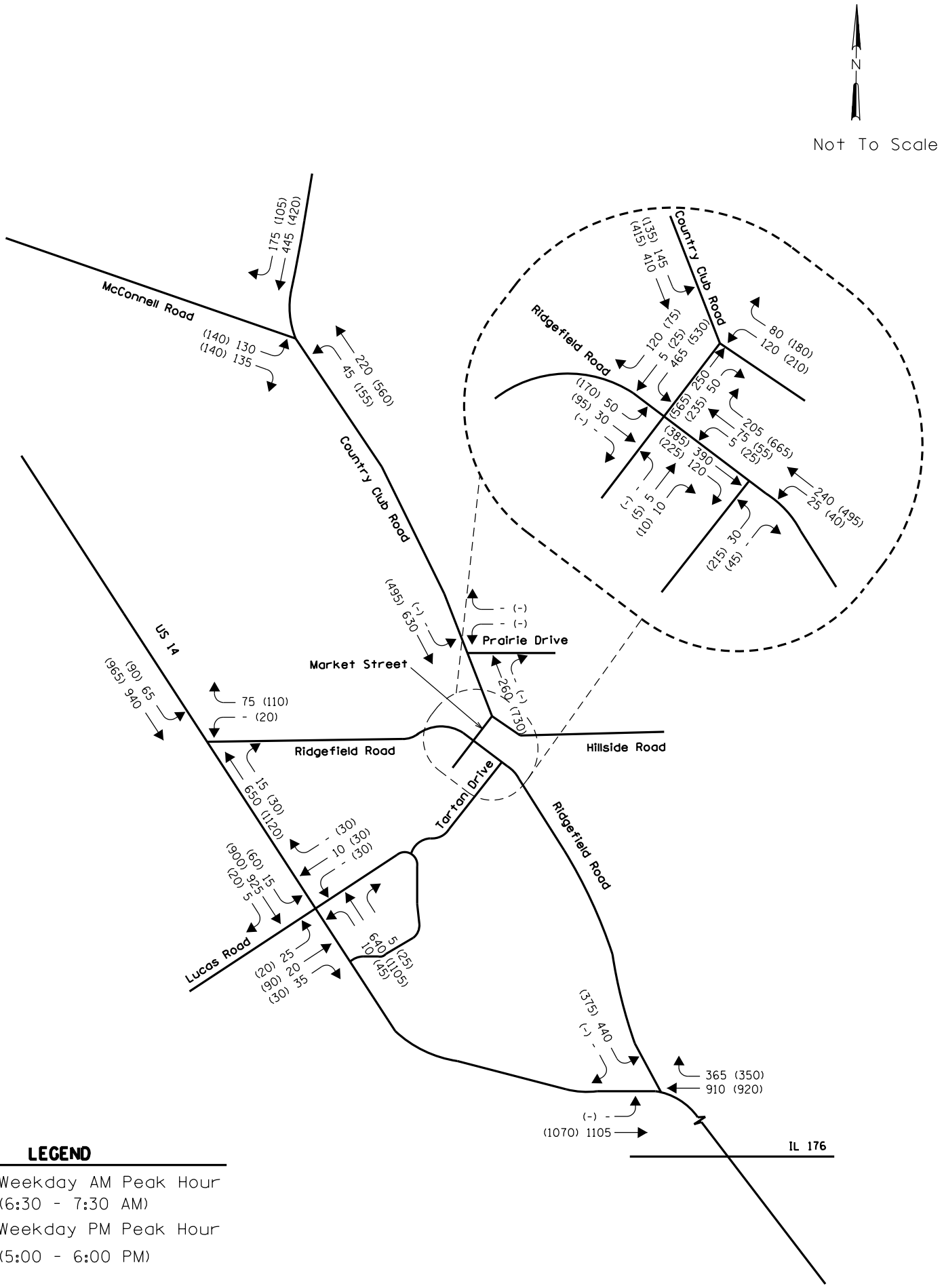
LEGEND

XX	-	Weekday AM Peak Hour (6:30 - 7:30 AM)
(XX)	-	Weekday PM Peak Hour (5:00 - 6:00 PM)
-	-	Less Than 5 Vehicles

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2015 No Build Traffic Volumes •Using 3% Growth

FIGURE 4



LEGEND

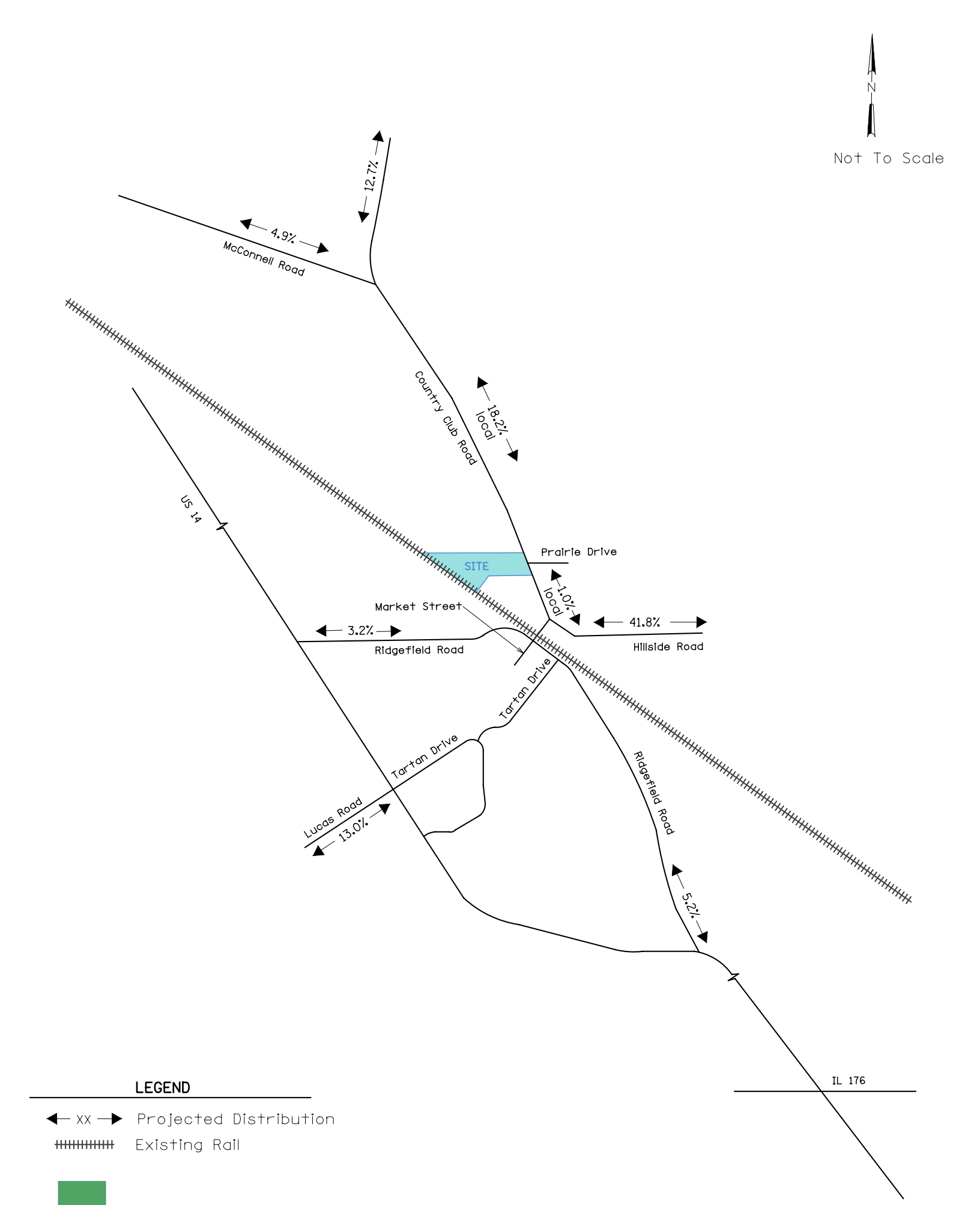
XX - Weekday AM Peak Hour (6:30 - 7:30 AM)

(XX) - Weekday PM Peak Hour (5:00 - 6:00 PM)

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2030 No Build Traffic

FIGURE 5



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Projected Traffic Distribution

FIGURE 6

Ridgefield Metra Station Commuter Draw Zone

Parcel	Acreage	Multiplier	Population
Residential	2,046	9.855	20,166
Estate	4,034	0.900	3,631
Agricultural	1,598	0.075	120
Total	7,678		23,916
Draw Zone Total Area	10,828		
Percent of Draw Zone Area Used	70.9%		

McConnell Road Zone

Parcel	Acreage	Multiplier	Population
Residential	108	9.855	1,065
Estate	98	0.900	88
Agricultural	0	0.075	0
Total	206		1,153
		% of Total	4.82%
% of Total Area	2.69%		

Ridgefield North

Parcel	Acreage	Multiplier	Population
Residential	65	9.855	644
Estate	98	0.900	88
Agricultural	147	0.075	11
Total	311		743
		% of Total	3.11%
% of Total Area	4.05%		

Ridgefield South

Parcel	Acreage	Multiplier	Population
Residential	123	9.855	1,211
Estate	0	0.900	0
Agricultural	219	0.075	16
Total	341		1,227
		% of Total	5.13%
% of Total Area	4.45%		

Lucas Road To/From West Zone

Parcel	Acreage	Multiplier	Population
Residential	308	9.855	3,039
Estate	59	0.900	53
Agricultural	358	0.075	27
Total	726		3,119
		% of Total	13.04%
% of Total Area	9.45%		

Hillside Road To/From East Zone

Parcel	Acreage	Multiplier	Population
Residential	982	9.855	9,675
Estate	340	0.900	306
Agricultural	294	0.075	22
Total	1,616		10,003
		% of Total	41.83%
% of Total Area	21.04%		

Country Club Road To/From North Zone

Parcel	Acreage	Multiplier	Population
Residential	18	9.855	180
Estate	3,129	0.900	2,816
Agricultural	547	0.075	41
Total	3,694		3,037
		% of Total	12.70%
% of Total Area	48.11%		

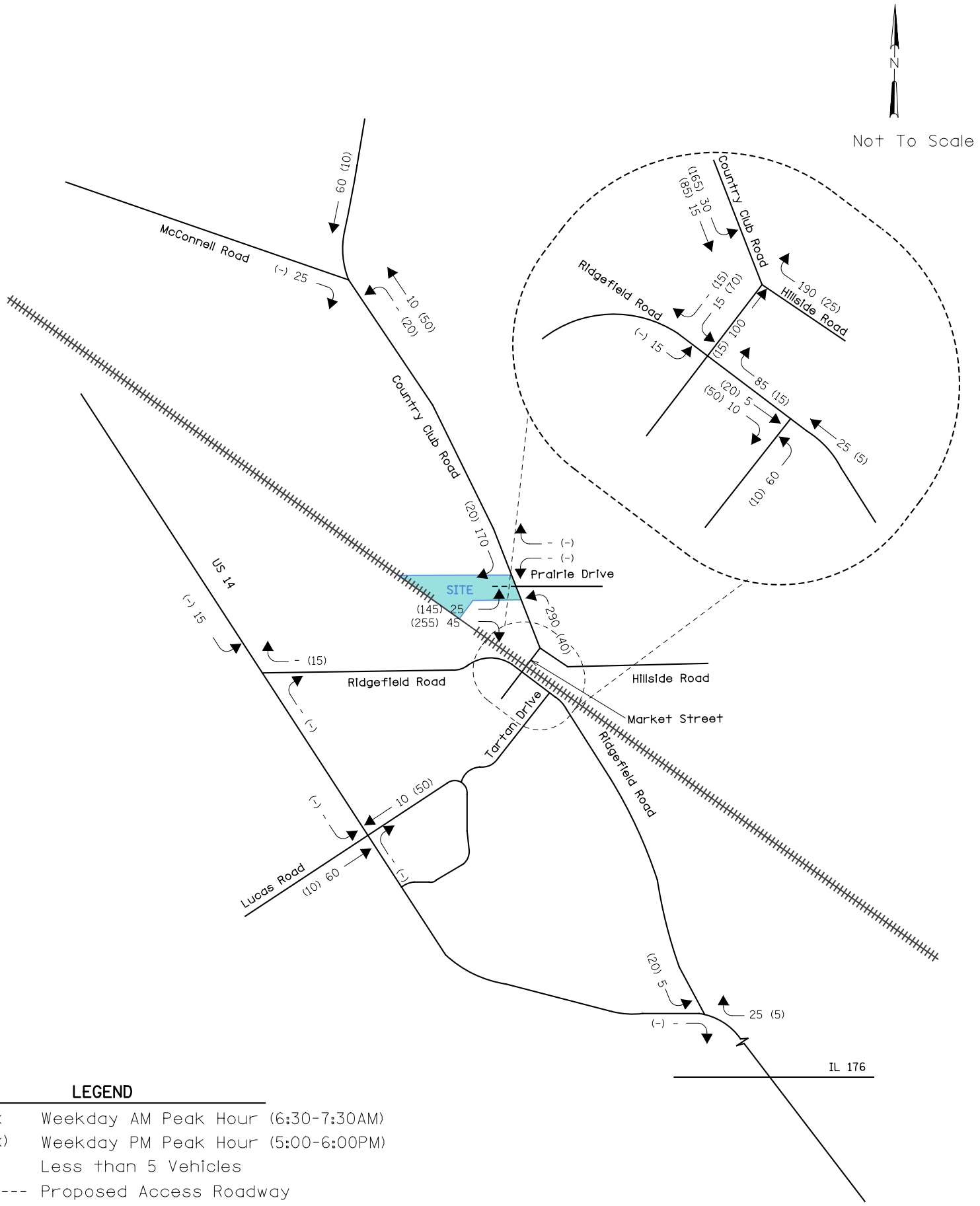
Country Club Road Zone South of McConnell and North of Metra Station

Parcel	Acreage	Multiplier	Population
Residential	413	9.855	4,072
Estate	299	0.900	269
Agricultural	31	0.075	2
Total	743		4,344
		% of Total	18.16%
% of Total Area	9.68%		

Country Club Road Zone South of Metra Station (Local Traffic)

Parcel	Acreage	Multiplier	Population
Residential	25	9.855	242
Estate	0	0.900	0
Agricultural	0	0.075	0
Total	25		242
		% of Total	1.01%
% of Total Area	0.32%		

	Total Percent	99.80%



LEGEND

xx	Weekday AM Peak Hour (6:30-7:30AM)
(xx)	Weekday PM Peak Hour (5:00-6:00PM)
-	Less than 5 Vehicles
--------	Proposed Access Roadway
++++++++++	Existing Rail

Note: Local Traffic Access Country Club Road North and South of the site from intersections not depicted on this graphic.

PATRICK ENGINEERING

SITE TRAFFIC

FIGURE 7

Patrick NW Line Trip Generation
2/12/2010

Station	Parking Area	Spaces	AM Peak Hour							PM Peak Hour						
			Traffic Peak	Turnover Rate [1]	DRIVE IN	DROP IN	DROP OUT	TOT IN	TOT OUT	Traffic Peak	Turnover Rate [1]	DRIVE OUT	DROP IN	DROP OUT	TOT IN	TOT OUT
Palatine	1	333	7:00 - 8:00	40.20%	127	22	22	**149**	**22**	5:00 - 6:00	28.20%	89	16	16	**16**	**105**
	2	580	7:00 - 8:00	40.20%	222	39	39	**261**	**39**	5:00 - 6:00	28.20%	155	27	27	**27**	**182**
	3	509	7:00 - 8:00	40.20%	194	34	34	**228**	**34**	5:00 - 6:00	28.20%	136	24	24	**24**	**160**
	TOTAL	**1422**	**7:00 - 8:00**	**40.20%**	**543**	**96**	**96**	**639**	**96**	**5:00 - 6:00**	**28.20%**	**381**	**67**	**67**	**67**	**448**
Barrington	1	525	7:00 - 8:00	25.80%	129	23	23	**152**	**23**	5:00 - 6:00	26.00%	130	23	23	**23**	**153**
	2	28	7:00 - 8:00	25.80%	7	1	1	**8**	**1**	5:00 - 6:00	26.00%	7	1	1	**1**	**8**
	TOTAL	**553**	**7:00 - 8:00**	**25.80%**	**136**	**24**	**24**	**160**	**24**	**5:00 - 6:00**	**26.00%**	**137**	**24**	**24**	**24**	**161**
Fox River Grove	1,2,3	677	6:30 - 7:30	34.40%	221	39	39	**260**	**39**	5:00 - 6:00	31.90%	205	36	36	**36**	**241**
	4,5	57	6:30 - 7:30	34.40%	19	3	3	**22**	**3**	5:00 - 6:00	31.90%	17	3	3	**3**	**20**
	TOTAL	**734**	**6:30 - 7:30**	**34.40%**	**240**	**42**	**42**	**282**	**42**	**5:00 - 6:00**	**31.90%**	**222**	**39**	**39**	**39**	**261**
Cary	1	61	6:45 - 7:45	44.00%	25	4	4	**29**	**4**	5:00 - 6:00	35.10%	20	4	4	**4**	**24**
	2,3,4	201	6:45 - 7:45	44.00%	84	15	15	**99**	**15**	5:00 - 6:00	35.10%	67	12	12	**12**	**79**
	TOTAL	**262**	**6:45 - 7:45**	**44.00%**	**110**	**19**	**19**	**129**	**19**	**5:00 - 6:00**	**35.10%**	**87**	**15**	**15**	**15**	**102**
Pingree	1	392	7:00	48.36%	180	32	32	**212**	**32**	5:45	39.60%	147	26	26	**26**	**173**
	TOTAL	**392**	**7:00**	**48.36%**	**180**	**32**	**32**	**212**	**32**	**5:45**	**39.60%**	**147**	**26**	**26**	**26**	**173**
Prarie Grove (New Station)	1	500	7:00 - 8:00	45.60%	217	38	38	**255**	**38**	5:00 - 6:00	35.10%	167	29	29	**29**	**196**
	TOTAL	**500**	**7:00 - 8:00**	**45.60%**	**217**	**38**	**38**	**255**	**38**	**5:00 - 6:00**	**35.10%**	**167**	**29**	**29**	**29**	**196**
McHenry	**TOTAL**	**388**	**7:00 - 8:00**	**45.60%**	**168**	**30**	**30**	**198**	**30**	**5:00 - 6:00**	**35.10%**	**129**	**23**	**23**	**23**	**152**
Johnsburg (New Station)	1	500	7:00 - 8:00	45.60%	217	38	38	**255**	**38**	5:00 - 6:00	35.10%	167	29	29	**29**	**196**
	2	1000	7:00 - 8:00	45.60%	433	76	76	**509**	**76**	5:00 - 6:00	35.10%	333	59	59	**59**	**392**
	TOTAL	**1500**	**7:00 - 8:00**	**45.60%**	**650**	**115**	**115**	**765**	**115**	**5:00 - 6:00**	**35.10%**	**500**	**88**	**88**	**88**	**588**
Crystal Lake	1	1103	6:00	44.60%	467	82	82	**549**	**82**	5:30	41.24%	432	76	76	**76**	**508**
	TOTAL	**1103**	**6:00**	**44.60%**	**467**	**82**	**82**	**549**	**82**	**5:30**	**41.24%**	**432**	**76**	**76**	**76**	**508**
Ridgefield (New Station)	1	875	6:30 - 7:30	46.48%	386	69	69	**455**	**69**	5:00 - 6:00	40.42%	336	59	59	**59**	**395**
	TOTAL	**875**	**6:30 - 7:30**	**46.48%**	**386**	**69**	**69**	**455**	**69**	**5:00 - 6:00**	**40.42%**	**336**	**59**	**59**	**59**	**395**
Woodstock	1	453	6:15	40.79%	176	31	31	**207**	**31**	6:15	42.69%	184	32	32	**32**	**216**
	TOTAL	**453**	**6:15**	**40.79%**	**176**	**31**	**31**	**207**	**31**	**6:15**	**42.69%**	**184**	**32**	**32**	**32**	**216**
Harvard [2]	1,5,6,7,8	275	7:00 - 8:00	35.40%	92	16	16	**108**	**16**	5:00 - 6:00	20.00%	52	9	9	**9**	**61**
	2,3,4	159	7:00 - 8:00	35.40%	53	9	9	**62**	**9**	5:00 - 6:00	20.00%	30	5	5	**5**	**35**
	TOTAL	**434**	**7:00 - 8:00**	**35.40%**	**146**	**26**	**26**	**172**	**26**	**5:00 - 6:00**	**20.00%**	**82**	**14**	**14**	**14**	**96**

(1) Turnover rates determined by calculating passengers on (AM) and off (PM) relative to daily total for each potential traffic peak hour. For new stations, turnover rates were pulled from turnover rates from adjacent stations - Praire Grove and Johnsburg used McHenry rates; Ridgefield used an average of Crystal Lake and Pingree Road rates

(2) PM 5-6 turnover rate at Harvard is 16.8%. However, a low cap of 20% is applied.

* Original Data Provided to Patrick Engineering by URS
Pingree, Crystal Lake, Woodstock, and Ridgefield modified by Patrick

Existing Trip Generation and Parking Occupancy Survey Summmary (Ref. URS Study)

Station	AM IN & PARK	AM DROP	AM Lot Utilization	PM PARKED & OUT	PM DROP	PM Lot Utilization	Existing Parking Supply	Future Parking Supply
Pingree	180	32	45.9%	147	26	37.5%	392	742
Crystal Lake	467	82	42.3%	432	76	39.2%	1,103	1,103
Average			44.1%			38.3%		
Ridgefield	386	68		335	59			875

Existing Metra Union Pacific Northwest Line Ridership Data (Ref. Metra Planning)

Ridership Total Hourly Summary (begins at)	**Departure Trains**		**Arrival Trains**		**Total On**	**Total Off**
	On	**Off**	**On**	**Off**		
Pingree						
AM Peak	281	3	0	11	281	14
PM Peak	7	1	0	237	7	238
Crystal Lake						
AM Peak	611	18	0	0	611	18
PM Peak	11	2	6	575	17	577

% of Riders During Peak

	AM	PM
Pingree	49.0%	40.3%
Crystal Lake	45.7%	42.4%
Average	47.4%	41.4%

Comparison of URS Trip Generation and Parking Data to Metra Ridership Data

Calculated Rates Rider per Trip				
Pingree Station	1.3255	0.0167	0.0000	0.0519
	0.0405	0.0058	0.0000	1.3699
Crystal Lake	1.1129	0.0328	0.0000	0.0000
	0.0217	0.0039	0.0118	1.1319
Average				
AM	1.2192	0.0247	0.0000	0.0259
PM	0.0311	0.0049	0.0059	1.2509

Ridgefield Station Ridership Projection Based on Rates from Nearby Stations

	Departure Trains		Arrival Trains		Hourly
	On	Off	On	Off	On & Off
AM Adj. Street Peak Hour (6:30 to 7:30)	**554**	**11**	**0**	**12**	**577**
PM Adjacent Street Peak (5:00 to 6:00)	**12**	**2**	**2**	**494**	**510**

Comparison of Nearby Stations Ridership to Trip Generation

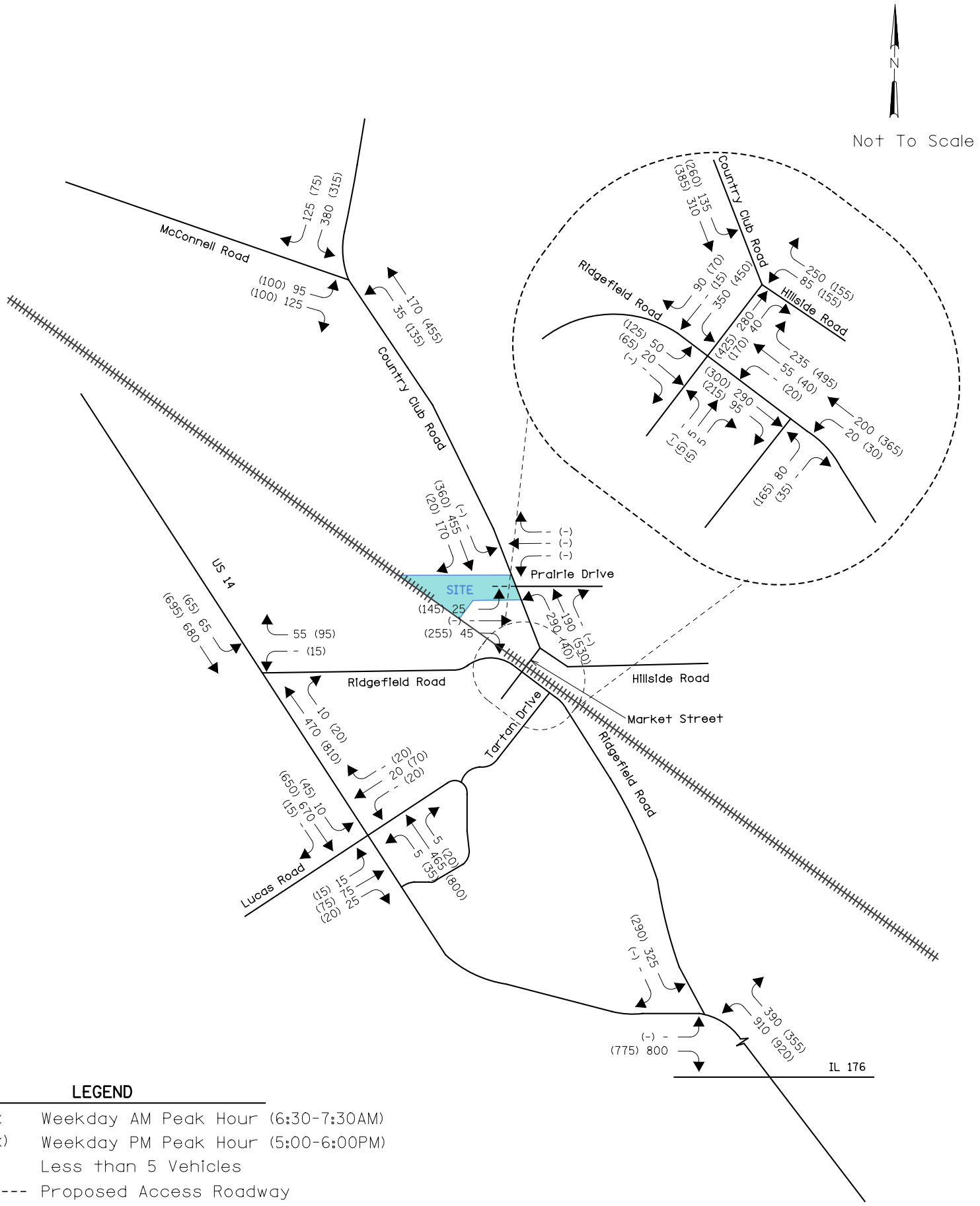
	Ratio of Trips to Total Riders		**Ratio of Pick-up/Drop-off to Total Riders**	
Pingree	AM Peak In	0.7544	AM Peak Out	0.1139
	PM Peak Out	0.7269	PM Peak In	0.1092
Crystal Lake	AM Peak In	0.8985	AM Peak Out	0.1342
	PM Peak Out	0.8804	PM Peak In	0.1317

Trip Generation Rates

AM IN *Avg.*	**PM OUT Avg.**	**AM OUT Avg.**	**PM IN Avg.**
0.8265	**0.8037**	**0.1240**	**0.1205**

Ridgefield Station Trip Generation Projection Based on Rates from Nearby Stations

AM Peak Hour			**PM Peak Hour**		
IN	**OUT**	**TOTAL**	**IN**	**OUT**	**TOTAL**
458	**69**	**527**	**60**	**398**	**458**



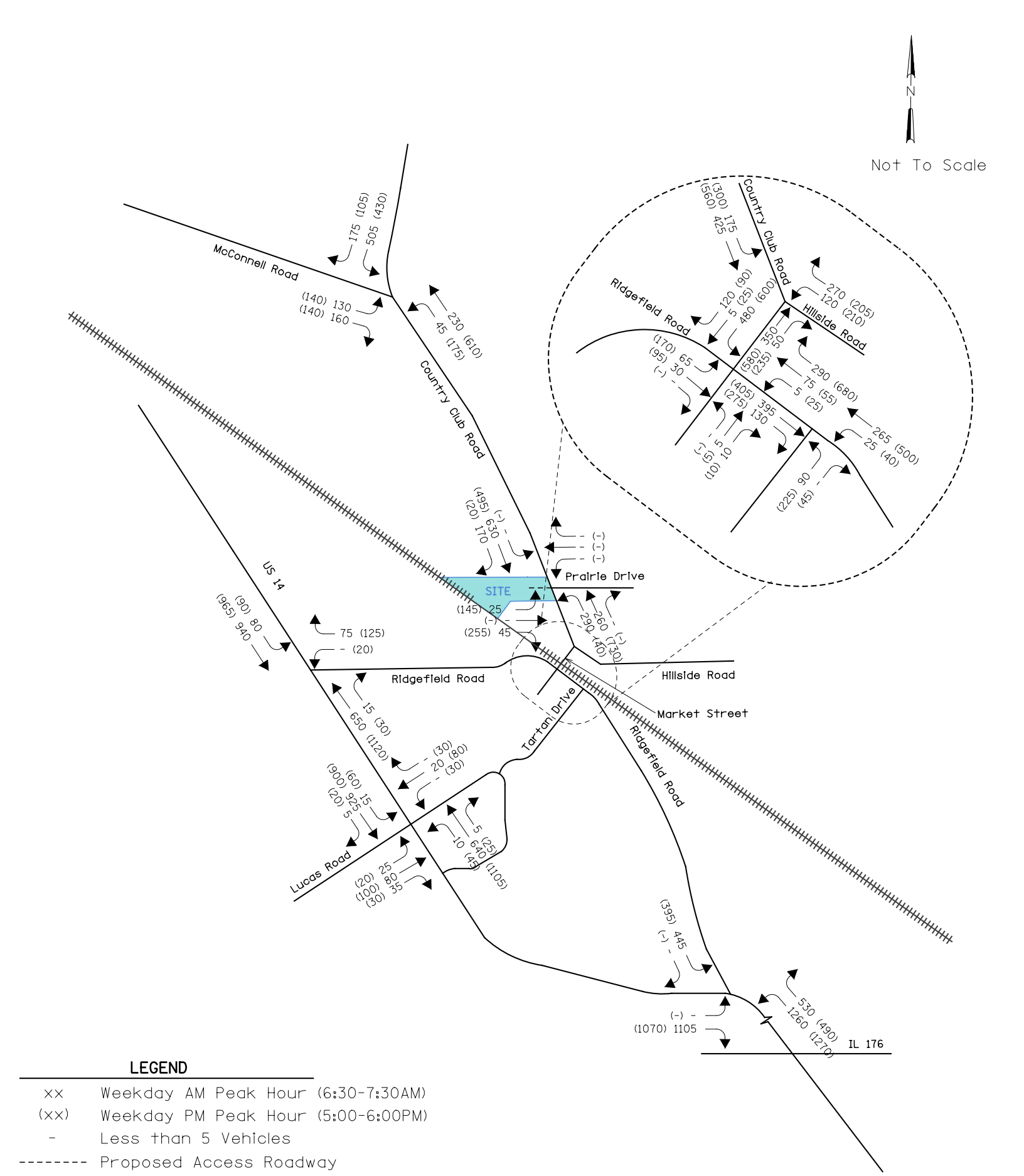
LEGEND

xx	Weekday AM Peak Hour (6:30-7:30AM)
(xx)	Weekday PM Peak Hour (5:00-6:00PM)
-	Less than 5 Vehicles
--------	Proposed Access Roadway
++++++++++	Existing Rail

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2015 Build Traffic

FIGURE 8



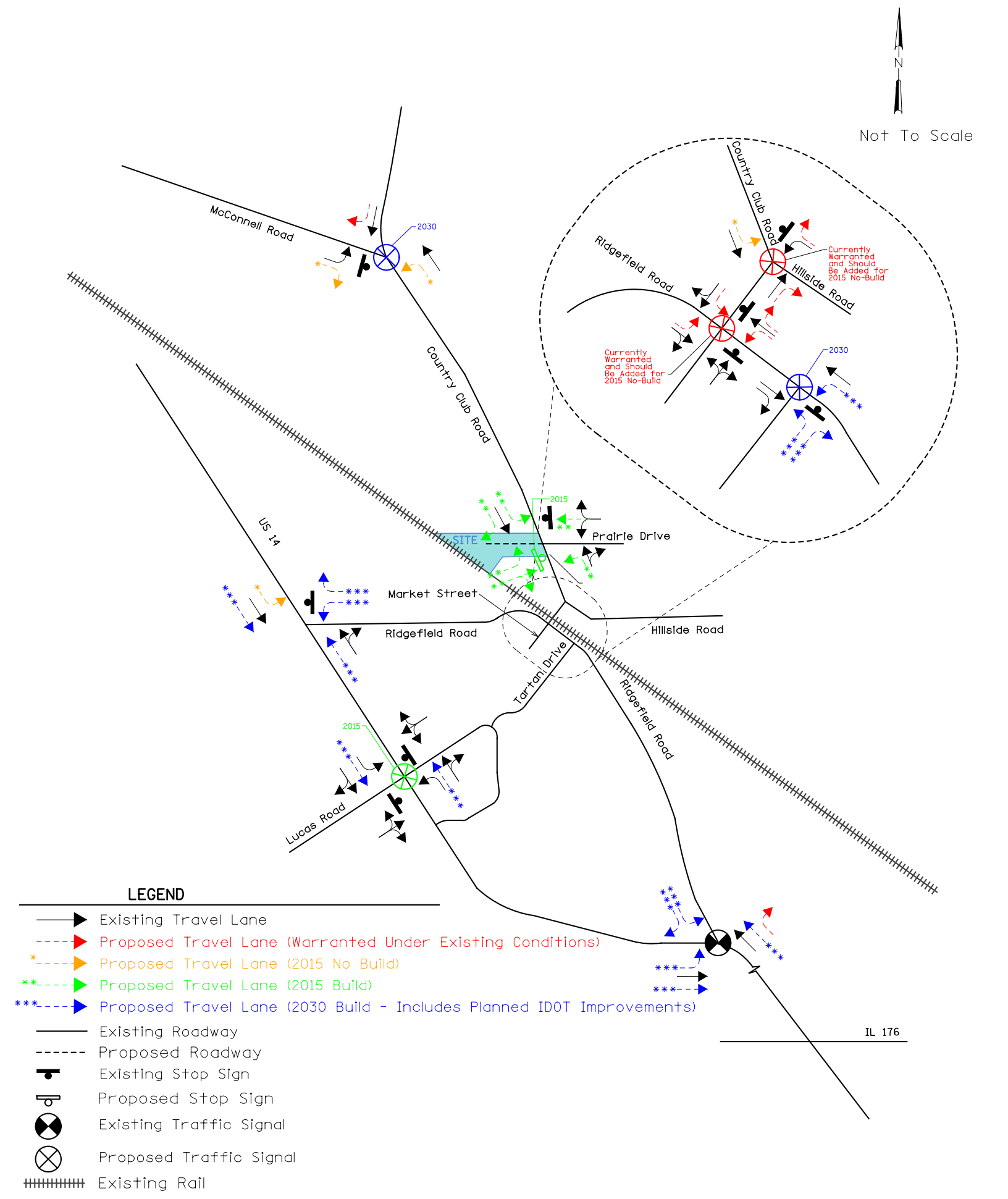
LEGEND

xx	Weekday AM Peak Hour (6:30-7:30AM)
(xx)	Weekday PM Peak Hour (5:00-6:00PM)
-	Less than 5 Vehicles
--------	Proposed Access Roadway
++++++++++	Existing Rail

PATRICK ENGINEERING

2030 BUILD TRAFFIC

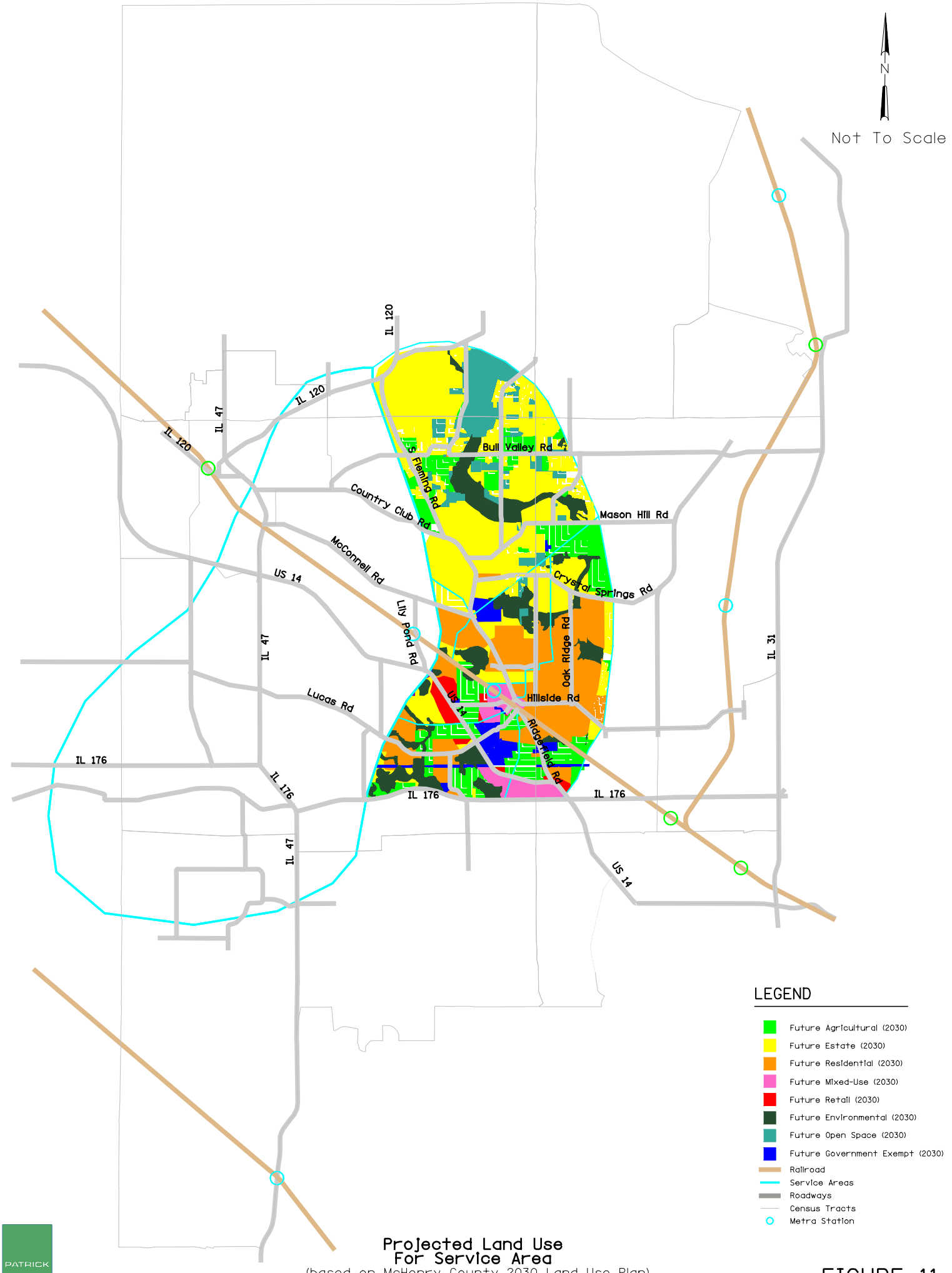
FIGURE 9



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Recommended Roadway Geometry

FIGURE 10



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Projected Land Use For Service Area

(based on McHenry County 2030 Land Use Plan)

FIGURE 11

Appendix D

Level-of-Service Descriptions

An assessment of traffic operations with and without the proposed development was made for the roadway network surrounding the project site. The operations of an intersection are qualified by assessing overall delay and often depicted by assigning a *Level-of-Service* (LOS) associated with that delay. LOS is a measure which refers to the overall quality of flow at an intersection based on average vehicle seconds of delay ranging from very good, represented by LOS A, to very poor, represented by LOS F.

LOS A is the highest level-of-service that can be achieved. Under this condition, intersection approaches appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation. Average vehicle delays are less than 10 seconds for both signalized and unsignalized intersections.

LOS B is representative of stable operation. At signalized intersections, average vehicle delays are greater than 10 and less than or equal to 20 seconds. For unsignalized intersections, average vehicle delays are greater than 10 and less than or equal to 15 seconds.

LOS C is still representative of stable operation, although periodic backups may develop behind turning vehicles. At signalized intersections, average vehicle delays are greater than 20 and less than or equal to 35 seconds. For unsignalized intersections, average vehicle delays are greater than 15 and less than or equal to 25 seconds.

At **LOS D** delays to approaching vehicles may be substantial during short peaks within the peak period, but periodic clearance of long lines occurs, thus preventing excessive backups. At signalized intersections, average vehicle delays are greater than 35 and less than or equal to 55 seconds. For unsignalized intersections, average vehicle delays are greater than 25 and less than or equal to 35 seconds.

LOS E represents the capacity of the intersection where there are likely to be long lines of vehicles waiting upstream of the intersection and delays may be great. At signalized intersections, average vehicle delays are greater than 55 and less than or equal to 80 seconds. For unsignalized intersections, average vehicle delays are greater than 35 and less than or equal to 50 seconds.

LOS F represents jammed conditions. Backups from locations downstream or on a cross street may restrict or prevent movement of vehicles out of an intersection approach under consideration. At signalized intersections, average vehicle delays are greater than 80 seconds. For unsignalized intersections, average vehicle delays are greater than 50 seconds.

In order to analyze the LOS at each intersection, a computer analysis program named Highway Capacity Software (HCS) is utilized. HCS determines the LOS and average vehicular delay of each intersection and individual movement based upon traffic volumes, number of lanes, lane widths, characteristics of the study area, and many other inputs.

Appendix E Omitted However Can Be Provided Upon Request

Appendix F

Signal Warrant - Country Club Road and Hillside Road - Existing-2009 No Build Conditions

BEGIN TIME	Major Street Approaches	Hillside WBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	Hillside WBR (With Reduction)	Hillside WBA (With Reduction)
6:00 AM	384	90	0	0	0.00	0.20	25	84
7:00 AM	680	197	0	0	0.00	0.20	51	184
8:00 AM	716	241	0	0	0.00	0.20	51	228
4:00 PM	838	207	0	0	0.00	0.40	70	161
5:00 PM	826	241	0	0	0.00	0.40	67	197
6:00 PM	513	195	0	0	0.00	0.40	43	167
	Four Hour Warrant	Met For 4 hours	Warrant Met					
	Peak Hour Warrant	Met For 0 hours	Warrant Not Met					

Signal Warrant - Country Club Road-Market Street and Ridgefield Road - Existing-2009 No Build Conditions

BEGIN TIME	Major Street Approaches	Country Club SBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	Country Club SBR (With Reduction)	Country Club SBA (With Reduction)
6:00 AM	131	281	0.6	0	0	0.6	27	250
7:00 AM	312	534	0.6	0	0	0.6	83	540
8:00 AM	313	535	0.6	0	0	0.6	93	562
4:00 PM	693	425	0.6	0	0	0.6	202	533
5:00 PM	616	385	0.6	0	0	0.6	163	487
6:00 PM	400	315	0.6	0	0	0.6	108	376
	Four Hour Warrant	Met for 5 hours	Warrant Met					
	Peak Hour Warrant	Met for 3 hours	Warrant Met					

Signal Warrant - Country Club Road and Prarie Road (Site Access) - 2030 Build Conditions

BEGIN TIME	Major Street Approaches	Prarie Rd EBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	Site EBR (With Reduction)	Site EBA (With Reduction)
6:30 AM	1354	72	0.75	12	0.05	0.7	14	39
5:00 PM	1289	402	0.75	5	0	0.75	64	209
	Peak Hour Warrant	Met for 1 hour	Warrant Met					

Signal Warrant - Tartan Road and Ridgefield Road - 2030 Build Conditions

BEGIN TIME	Major Street Approaches	Tartan NBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	Tartan NBR (With Reduction)	Tartan NBA (With Reduction)
6:30 AM	815	92	0.2	0	0	0.2	2	92
5:00 PM	1220	270	0.2	0	0	0.2	36	261
	Peak Hour Warrant	Met for 1 hour	Warrant Met					

Signal Warrant - Country Club Road and McConnell Road - 2030 Build Conditions

BEGIN TIME	Major Street Approaches	McConnell Rd EBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	McConnell EBR (With Reduction)	McConnell EBA (With Reduction)
6:30 AM	955	290	0.75	5	0	0.75	40	170
5:00 PM	1320	280	0.75	2	0	0.75	35	175
	Peak Hour Warrant	Met for 1 hour	Warrant Met					

Signal Warrant - US 14 & Lucas Road-Tartan Drive - 2015 Build Conditions

BEGIN TIME	Major Street Approaches	Lucas Road NBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	Lucas Road EBR (With Reduction)	Lucas Road NBA (With Reduction)
6:30 AM	1156	115	0.2	14	0.15	0.05	24	114
5:00 PM	1565	110	0.2	13	0.15	0.05	19	109
	Peak Hour Warrant	Met for 1 hour	Warrant Met					

Note: For Peak Hour Warrant Evaluation 70% Criteria was not applied at locations where the speed limit is above 40 MPH due to the existing and anticipated future character of the study area.

Signal Warrant - Ridgefield Road and Tartan Drive - 2015 No Build Conditions

BEGIN TIME	Major Street Approaches	Tartan NBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	Tartan NBR (With Reduction)	Tartan NBA (With Reduction)
6:00 AM	427	19	0.2	0	0	0.2	0	19
7:00 AM	838	31	0.2	0	0	0.2	1	30
8:00 AM	848	100	0.2	0	0	0.2	19	96
4:00 PM	784	202	0.2	0	0	0.2	28	195
5:00 PM	833	191	0.2	0	0	0.2	27	184
6:00 PM	865	131	0.2	0	0	0.2	24	125
	Four Hour Warrant	Met for 2 hours	Warant Not Met					
	Peak Hour Warrant	Met for 0 hours	Warant Not Met					

Signal Warrant - Country Club Road and McConnell Road - Existing Conditions

BEGIN TIME	Major Street Approaches	McConnell Rd SBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	McConnell SBR (With Reduction)	McConnell SBA (With Reduction)
6:00 AM	391	150	0.4	0	0	0.4	46	119
7:00 AM	728	149	0.4	0	0	0.4	52	114
8:00 AM	672	136	0.6	0	0	0.6	39	78
4:00 PM	806	153	0.4	0	0	0.4	46	123
5:00 PM	762	172	0.4	0	0	0.4	52	138
6:00 PM	521	127	0.4	0	0	0.4	36	103
	Four Hour Warrant	0 hours met	Warrant Not Met					
	Peak Hour Warrant	0 hours met	Warrant Not Met					

Signal Warrant - Country Club Road and McConnell Road - 2015 No Build Conditions

BEGIN TIME	Major Street Approaches	McConnell Rd EBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	McConnell EBR (With Reduction)	McConnell EBA (With Reduction)
6:00 AM	461	177	0.4	0	0	0.4	55	141
7:00 AM	859	176	0.4	2	0.05	0.35	67	140
8:00 AM	793	160	0.6	0	0	0.6	46	92
4:00 PM	951	181	0.4	0	0	0.4	54	145
5:00 PM	899	203	0.4	0	0	0.4	61	162
6:00 PM	615	150	0.4	0	0	0.4	42	122
	Four Hour Warrant	Met for 3 hours	Warrant Not Met					
	Peak Hour Warrant	Met for 0 hours	Warrant Not Met					

Signal Warrant - Country Club Road and McConnell Road - 2015 Build Conditions

BEGIN TIME	Major Street Approaches	McConnell Rd EBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	McConnell EBR (With Reduction)	McConnell EBA (With Reduction)
6:30 AM	710	215	0.75	0	0	0.75	30	125
5:00 PM	1000	205	0.75	0	0	0.75	26	126
	Peak Hour Warrant	Met for 0 hours	Warrant Not Met					

Signal Warrant - Country Club Road and Prarie Road (Site Access) - 2015 Build Conditions

BEGIN TIME	Major Street Approaches	Prarie Rd EBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	Site EBR (With Reduction)	Site EBA (With Reduction)
6:30 AM	1109	72	0.75	3	0.05	0.7	14	39
5:00 PM	954	402	0.75	0	0	0.75	64	209
	Peak Hour Warrant	Met for 0 hours	Warrant Not Met					

Signal Warrant - Tartan Road and Ridgefield Road - 2015 Build Conditions

BEGIN TIME	Major Street Approaches	Tartan NBA (No Reduction Factors)	RT Red. Fac.	Congestion Factor Actual	Congestion Factor Rounded	Cum. Reduction	Tartan NBR (With Reduction)	Tartan NBA (With Reduction)
6:30 AM	605	82	0.2	0	0	0.2	2	82
5:00 PM	910	200	0.2	0	0	0.2	28	193
	Peak Hour Warrant	Met for 0 hours	Warrant Not Met					

Note: For Peak Hour Warrant Evaluation 70% Criteria was not applied at locations where the speed limit is above 40 MPH due to the existing and anticipated future character of the study area.

Appendix G

Ridgefield Road at Country Club Road



looking north



looking south



looking east



looking west

Country Club Road at Hillside Road



looking north



looking east

Country Club Road at Prairie Drive (future site entrance)



looking north



looking south



looking east



looking west

Country Club Road at McConnell Road



looking north



looking south



looking west

Appendix H

Station/Train Passenger Count:
Union Pacific Northwest Line Inbound ***Thursday, November 9, 2***

	Train:	602		604		606		608		610		612		614		616		618	
	Depart:	4:47 AM		5:12 AM		5:36 AM		5:50 AM		5:47 AM		6:27 AM		6:19 AM		6:35 AM		7:11 AM	
	Arrive:	6:10 AM		6:35 AM		7:02 AM		7:17 AM		7:22 AM		7:37 AM		7:41 AM		7:55 AM		7:56 AM	
Station	Mile Post	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs
Harvard	63.1									57									
Woodstock	51.6									108	0								
McHenry Branch	50.6							35											
Crystal Lake	43.2	89		45		57				214	11			55		97			
Pingree Road	41.7					16	0	94	0					32	0	41	0		
Cary	38.6	41	0	41	1	42	0			176	3			43	0				
Fox River Grove	37.3	13	0	15	0	13	0			88	0			12	0				
Barrington	31.9	43	0	49	0	48	0	125	24	193	5	17		51	0				
Palatine	26.4	61	1	56	1	72	1	235	2			78	0	116	18	73	4		
Arlington Park	24.4	38	0	42	3	28	2	140	2	152	11	5	22	83	0			336	
Arlington Heights Transfer	*22.8*																		
Arlington Heights	22.8	66	1	77	2	64	5	237	3			64	1	151	4	72	5	291	0
Mount Prospect	20.0	48	0	54	0	48	6	191	3			70	0	103	24			267	1
Cumberland	18.6	8	5	13	3	13	7	55	0					48	6				
Des Plaines Transfer	*17.1*										*2*	*2*			*0*	*0*			
Des Plaines	17.1	32	6	33	5	53	16			109	33	28	8	94	5	17	8		
Dee Road	15.0	15	0	21	0	37	1					58	4			51	2		
Park Ridge	13.5	19	1	26	4	49	12					87	11	126	14	33	10		
Edison Park	12.6	22	0	26	1	33	1					75	0			95	2		
Norwood Park	11.4	8	3	10	0	22	1					38	3			52	4		
Gladstone Park	10.1	6	3	17	2	13	0					20	0						
Jefferson Park	9.1	12	6	15	13	43	9					75	17			85	16		
Irving Park	7.0	9	10	20	6	20	3					43	2			49	4		
Clybourn	2.9	3	26	39	19	22	20	9	52	9	65	11	18	8	13	12	16	5	44
Ogilvie Transportation Center	0.0		471		539		609		1,035		976		585		838		606		854
Total Passengers		533	533	599	599	693	693	1,121	1,121	1,106	1,106	671	671	922	922	677	677	899	899
Maximum Load			495		539		609		1,078		924		592		843		610		893
Maximum Load Point			Irving Park		Ogilvie Transp. Ctr		Ogilvie Transp. Ctr		Clybourn		Clybourn		Clybourn		Clybourn		Clybourn		Clybourn
Intermediate Passengers			62		60		84		86		130		86		84		71		45
Passenger Miles			13,551		12,836		14,453		28,460		32,810		9,576		20,789		13,099		20,040
Average Trip Length			25.4		21.4		20.9		25.4		29.7		14.3		22.5		19.3		22.3

Blank cells are non-stops.

Departure From Crystal Lake	4:47		5:12		5:36		n/a		6:13		n/a		6:19		6:35		n/a		

Station/Train Passenger Count:
Union Pacific Northwest Line Inbound ***Thursday, November 9, 2***

	Train:	620		622		624		626		628		630		632		634		636	
	Depart:	6:22 AM		6:52 AM		7:00 AM		7:27 AM		7:42 AM		7:08 AM		7:35 AM		7:47 AM		7:35 AM	
	Arrive:	8:01 AM		8:13 AM		8:26 AM		8:31 AM		8:36 AM		8:41 AM		8:52 AM		8:55 AM		9:20 AM	
Station	Mile Post	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs
Harvard	63.1	51										68						29	
Woodstock	51.6	103	0									83	0					41	2
McHenry Branch	50.6			42										24					
Crystal Lake	43.2	164	7			81						186	4					68	5
Pingree Road	41.7			139	1									126	1			16	1
Cary	38.6	160	1	143	1							132	1					45	0
Fox River Grove	37.3	79	1	54	0							53	2					20	1
Barrington	31.9	226	16	166	5	38	9	25		126		63	16	109	0	26		21	9
Palatine	26.4	372	15			66	7			362	1					47	0	99	14
Arlington Park	24.4					50	8	98	0	199	0					18	0	59	9
Arlington Heights Transfer	*22.8*																		
Arlington Heights	22.8					93	38	154	1	342	2					52	1	101	8
Mount Prospect	20.0					99	13	170	3					169	7			54	10
Cumberland	18.6	57	10			19	4	40	0							9	1	17	3
Des Plaines Transfer	*17.1*				*1*	*1*							*7*			*7*			
Des Plaines	17.1			127	24	35	17	64	2			82	19			36	3	32	18
Dee Road	15.0			95	1			59	0							34	4	12	0
Park Ridge	13.5			144	11			102	6							37	9	29	9
Edison Park	12.6					89	5							100	0			17	0
Norwood Park	11.4					47	15									18	1	16	2
Gladstone Park	10.1					35	2									11	3		
Jefferson Park	9.1					81	29									46	9	12	16
Irving Park	7.0					67	9									27	8	15	7
Clybourn	2.9	11	34	48	28	25	23	9	16	18	45	9	37	8	12	2	5	3	11
Ogilvie Transportation Center	0.0		1,139		886		647		693		999		590		516		326		581
Total Passengers		1,223	1,223	958	958	826	826	721	721	1,047	1,047	676	676	536	536	370	370	706	706
Maximum Load			1,059		886		647		700		1,026		535		520		329		550
Maximum Load Point			Clybourn		Ogilvie Transp. Ctr		Ogilvie Transp. Ctr		Clybourn		Clybourn		Clybourn		Clybourn		Clybourn		Clybourn
Intermediate Passengers			84		72		179		28		48		86		20		44		125
Passenger Miles			35,979		25,561		13,226		13,982		26,079		21,488		14,416		6,069		15,790
Average Trip Length			29.4		26.7		16.0		19.4		24.9		31.8		26.9		16.4		22.4

Blank cells are non-stops.

Departure From Crystal Lake	6:50		n/a		7:00		n/a		n/a		7:35		n/a		n/a		8:00		

Station/Train Passenger Count:
Union Pacific Northwest Line Inbound ***Thursday, November 9, 2***

	Train:	**638**		**640**		**642**		**644**		**646**		**648**		**650**		**652**		**654**	
	Depart:	9:00 AM		9:35 AM		11:00 AM		12:10 PM		1:35 PM		3:00 PM		4:20 PM		4:15 PM		4:35 PM	
	Arrive:	10:23 AM		11:23 AM		12:23 PM		1:33 PM		3:23 PM		4:23 PM		4:59 PM		5:38 PM		6:23 PM	
Station	Mile Post	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs
Harvard	63.1			28						15								14	
Woodstock	51.6			38	0					28	3							17	2
McHenry Branch	50.6																		
Crystal Lake	43.2	46		47	3	30		27		19	2	16				40		21	3
Pingree Road	41.7	15	0	16	0	17	0	6	0	3	7	9	0			10	0	17	0
Cary	38.6	28	0	16	4	13	0	16	1	6	1	17	3			12	0	18	5
Fox River Grove	37.3	8	0	11	0	14	1	9	0	5	3	4	1			8	0	1	0
Barrington	31.9	40	0	17	3	14	0	14	3	14	0	41	2			67	0	36	2
Palatine	26.4	52	1	39	5	28	0	24	0	25	2	36	3			54	3	52	3
Arlington Park	24.4	28	2	27	5	13	0	13	0	10	2	36	4			49	5	37	0
Arlington Heights Transfer	*22.8*																		
Arlington Heights	22.8	61	6	37	4	37	0	45	4	38	4	55	3			64	3	36	17
Mount Prospect	20.0	43	1	16	2	16	0	14	4	13	2	20	3			39	2	28	2
Cumberland	18.6	7	0	11	1	4	0	5	0	2	2	4	4			24	4	6	1
Des Plaines Transfer	*17.1*																		
Des Plaines	17.1	15	6	13	7	10	5	6	5	7	11	21	4	27		20	5	13	8
Dee Road	15.0	6	0	10	1	2	0	0	0	2	0	3	1	7	0	7	0	2	0
Park Ridge	13.5	20	1	12	2	12	2	10	2	7	2	6	5	13	0	21	5	5	2
Edison Park	12.6	11	1	6	2	2	3	4	0	0	9	4	2	3	0	9	5	0	2
Norwood Park	11.4	4	1	2	2	3	1	4	3	4	2	1	8	5	0	5	5	5	1
Gladstone Park	10.1																		
Jefferson Park	9.1	6	18	2	13	4	8	6	12	2	24	17	16	4	3	2	48	2	34
Irving Park	7.0	3	3	2	2	6	5	4	8	5	3	1	15	0	5	1	50	8	40
Clybourn	2.9	22	10	0	2	1	6	0	6	6	9	3	27	6	3	0	51	0	56
Ogilvie Transportation Center	0.0		365		292		195		159		123		193		54		246		140
Total Passengers		415	415	350	350	226	226	207	207	211	211	294	294	65	65	432	432	318	318
Maximum Load			365		267		203		175		128		237		56		392		245
Maximum Load Point			Jefferson Park		Jefferson Park		Jefferson Park		Jefferson Park		Edison Park		Norwood Park		Irving Park		Jefferson Park		Jefferson Park
Intermediate Passengers			50		58		31		48		88		101		11		186		178
Passenger Miles			10,059		8,625		5,949		4,948		3,770		6,262		820		9,685		6,735
Average Trip Length			24.2		24.6		26.3		23.9		17.9		21.3		12.6		22.4		21.2

Blank cells are non-stops.

Departure From Crystal Lake	9:00	10:00	11:00	12:10	2:00	3:00	n/a	4:15	5:00

Station/Train Passenger Count:

Union Pacific Northwest Line Inbound ***Thursday, November 9, 2***

	Train:	**656**		**658**		**660**		**662**		**664**	
	Depart:	6:05 PM		5:35 PM		8:00 PM		8:35 PM		12:10 AM	
	Arrive:	6:57 PM		7:23 PM		9:23 PM		10:23 PM		1:25 AM	
Station	Mile Post	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs
Harvard	63.1			6				6			
Woodstock	51.6			10	0			15	1		
McHenry Branch	50.6										
Crystal Lake	43.2			11	2	13		11	2	0	
Pingree Road	41.7			7	1	3	0	3	0	3	0
Cary	38.6			8	1	9	0	3	0	0	0
Fox River Grove	37.3			3	0	2	0	1	0	2	0
Barrington	31.9	39		8	1	18	1	7	0	1	0
Palatine	26.4			22	2	16	6	6	7	2	0
Arlington Park	24.4	47	1	7	2	7	1	6	1	3	0
Arlington Heights Transfer	*22.8*										
Arlington Heights	22.8			24	4	11	2	5	4	4	0
Mount Prospect	20.0			13	1	12	0	6	1	3	0
Cumberland	18.6			2	3	1	1	1	1		
Des Plaines Transfer	*17.1*										
Des Plaines	17.1	7	1	5	4	3	6	1	2	0	1
Dee Road	15.0			3	0	1	0	2	0		
Park Ridge	13.5	8	9	2	4	1	2	1	1	0	0
Edison Park	12.6			2	7	0	1	0	3		
Norwood Park	11.4			0	2	0	2	1	2		
Gladstone Park	10.1										
Jefferson Park	9.1	1	9	0	20	1	15	0	9	0	6
Irving Park	7.0	0	16	2	15	0	5	0	8		
Clybourn	2.9	0	13	1	20	0	10	0	4	0	1
Ogilvie Transportation Center	0.0		53		47		46		29		10
Total Passengers		102	102	136	136	98	98	75	75	18	18
Maximum Load			91		98		81		40		18
Maximum Load Point			Park Ridge		Park Ridge		Des Plaines		Edison Park		Des Plaines
Intermediate Passengers			49		89		52		46		8
Passenger Miles			2,233		2,572		2,230		1,302		434
Average Trip Length			21.9		18.9		22.8		17.4		24.1

Blank cells are non-stops.

Departure From Crystal Lake n/a 6:00 8:00 9:00

Station/Train Passenger Count:

Union Pacific Northwest Line Outbound

Thursday, November 9, 2

	Train:	603		605		607		609		611		613		615		617		619	
	Depart:	5:55 AM		6:30 AM		7:13 AM		7:30 AM		9:00 AM		10:30 AM		11:30 AM		12:30 PM		1:30 PM	
	Arrive:	7:26 AM		7:35 AM		8:35 AM		9:20 AM		10:25 AM		11:55 AM		1:20 PM		1:55 PM		3:20 PM	
Station	Mile Post	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs
Ogilvie Transportation Center	0.0	33		53		105		85		55		101		158		211		314	
Clybourn	2.9	25	2	42	4	61	2	47	0	12	3	11	1	10	1	4	2	14	2
Irving Park	7.0	17	0	20	1	60	0	17	1	13	0	2	0	8	0	4	4	4	3
Jefferson Park	9.1	24	0	18	4	51	4	59	2	16	3	18	0	14	7	4	3	21	8
Gladstone Park	10.1																		
Norwood Park	11.4	0	0	5	0			7	4	2	4	2	1	2	3	1	0	2	3
Edison Park	12.6	3	0	2	2			4	1	1	1	3	0	3	5	5	8	0	11
Park Ridge	13.5	6	0	4	1	4	6	6	10	1	4	1	6	1	7	2	15	3	10
Dee Road	15.0	1	0	1	4	0	2	0	2	0	1	0	1	0	4	0	4	0	9
Des Plaines	17.1	4	3	3	13	8	21	15	6	8	11	8	16	4	8	2	17	9	16
Des Plaines Transfer	*17.1*																		
Cumberland	18.6	2	4	1	5	3	13	0	13	0	2	1	2	1	10	0	6	3	5
Mount Prospect	20.0	2	9	1	17	1	27	1	17	2	7	0	10	6	19	1	20	3	19
Arlington Heights	22.8	4	18	3	37	4	58	2	24	0	18	3	29	4	25	31	37	6	60
Arlington Heights Transfer	*22.8*																		
Arlington Park	24.4	1	18	0	25	2	58	2	24	0	11	0	13	1	12	1	17	2	26
Palatine	26.4	3	17	2	18	1	39	5	24	2	19	2	12	4	22	0	33	3	44
Barrington	31.9	2	30		24	1	35	1	39	1	16	0	19	0	16	0	46	2	34
Fox River Grove	37.3	1	6			0	4	0	2	1	1	0	6	0	4	0	10	0	8
Cary	38.6	1	10			1	7	4	3	0	5	0	8	0	12	0	15	1	22
Pingree Road	41.7	0	11			2	7	2	3	0	4	0	7	0	4	0	4	0	13
Crystal Lake	43.2						21	0	61		4		21	3	16		25	1	45
McHenry Branch	50.6		1																
Woodstock	51.6							0	12					2	22			4	23
Harvard	63.1								9						24				31
Total Passengers		129	129	155	155	304	304	257	257	114	114	152	152	221	221	266	266	392	392
Maximum Load			108		132		271		214		90		135		182		215		340
Maximum Load Point			Des Plaines		Park Ridge		Jefferson Park		Des Plaines		Jefferson Park		Edison Park		Jefferson Park		Norwood Park		Jefferson Park
Intermediate Passengers			96		102		199		172		59		51		63		55		78
Passenger Miles			2,662		2,716		6,148		6,305		2,170		3,694		6,148		6,060		11,105
Average Trip Length			20.6		17.5		20.2		24.5		19.0		24.3		27.8		22.8		28.3

Blank cells are non-stops.

Arrival at Crystal Lake n/a n/a 8:35 8:51 10:25 11:55 12:51 1:55 2:51

Station/Train Passenger Count:

Union Pacific Northwest Line Outbound ***Thursday, November 9, 2***

	Train:	621		623		625		627		629		631		633		635		637	
	Depart:	2:30 PM		3:25 PM		3:45 PM		4:05 PM		4:39 PM		4:45 PM		4:48 PM		4:57 PM		5:06 PM	
	Arrive:	3:55 PM		4:04 PM		5:24 PM		6:05 PM		5:57 PM		6:02 PM		5:54 PM		6:10 PM		6:30 PM	
Station	Mile Post	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs
Ogilvie Transportation Center	0.0	488		190		1,078		513		996		848		353		869		553	
Clybourn	2.9	8	6	18	2			18	11	21	4	14	1	2	14	25	8	15	26
Irving Park	7.0	5	20	9	4			8	19					9	50				
Jefferson Park	9.1	10	7	13	20			26	47					11	68				
Gladstone Park	10.1			0	12			0	10					0	10				
Norwood Park	11.4	9	6	0	22			6	23					1	58				
Edison Park	12.6	4	28	2	41			1	29					0	44				
Park Ridge	13.5	7	24	12	43			29	44	18	143			6	25				
Dee Road	15.0	0	9	2	27			8	32					1	58				
Des Plaines	17.1	2	22	0	15	31	44	34	20	13	98			4	24			11	175
Des Plaines Transfer	*17.1*				*60*	*60*									*10*			*10*	
Cumberland	18.6	1	10			11	25	18	12	0	57							1	68
Mount Prospect	20.0	5	53			27	96	20	35	1	140					8	260	2	69
Arlington Heights	22.8	40	72			8	169	5	64	2	233							4	134
Arlington Heights Transfer	*22.8*																		
Arlington Park	24.4	3	35			8	126	9	41	3	106					3	177	36	16
Palatine	26.4	2	74			8	188	16	62	3	165			0	21	4	227		
Barrington	31.9	3	76			12	146	12	25	5	18	7	348		5	2	71	2	51
Fox River Grove	37.3	1	17			1	41	1	15			0	118					1	27
Cary	38.6	0	35			1	90	0	44			2	224			0	62	0	32
Pingree Road	41.7	0	17			0	63	0	23			0	112			0	42	2	23
Crystal Lake	43.2		77			8	141	3	90		98						64		16
McHenry Branch	50.6												68						
Woodstock	51.6					1	78	1	52										
Harvard	63.1						47		30										
Total Passengers		588	588	246	246	1,254	1,254	728	728	1,062	1,062	871	871	387	387	911	911	637	637
Maximum Load			490		211		1,125		520		1,013		861		353		886		553
Maximum Load Point			Clybourn		Irving Park		Des Plaines Tran.		Clybourn		Clybourn		Clybourn		Ogilvie Transp. Ctr		Clybourn		Ogilvie Transp. Ctr
Intermediate Passengers			100		56		176		215		66		23		34		42		84
Passenger Miles			13,897		2,922		36,652		16,625		23,637		31,922		4,484		24,234		13,063
Average Trip Length			23.6		11.9		29.2		22.8		22.3		36.6		11.6		26.6		20.5

Blank cells are non-stops.

Arrival at Crystal Lake 3:55 n/a 4:58 5:36 5:56 n/a n/a 6:10 6:30

Station/Train Passenger Count:

Union Pacific Northwest Line Outbound ***Thursday, November 9, 2***

	Train:	639		641		643		645		647		649		651		653		655	
	Depart:	5:12 PM		5:16 PM		5:20 PM		5:23 PM		5:33 PM		5:47 PM		6:01 PM		6:25 PM		6:30 PM	
	Arrive:	6:17 PM		6:46 PM		6:50 PM		6:36 PM		7:19 PM		7:19 PM		7:08 PM		8:06 PM		7:58 PM	
Station	Mile Post	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs
Ogilvie Transportation Center	0.0	456		1,136		887		437		955		654		812		809		359	
Clybourn	2.9					18	29	14	4	9	11	5	18	16	11	12	12	8	4
Irving Park	7.0	0	63					2	31			3	50					3	31
Jefferson Park	9.1	4	82					14	44			12	63					13	22
Gladstone Park	10.1	0	20															0	8
Norwood Park	11.4	0	55									3	43					0	23
Edison Park	12.6	0	71					2	88			0	68					0	58
Park Ridge	13.5	10	92					5	94			4	93					5	62
Dee Road	15.0	0	52					0	47			2	67					0	34
Des Plaines	17.1	4	20					5	80			7	92					4	51
Des Plaines Transfer	*17.1*																		
Cumberland	18.6							1	35			1	39					2	11
Mount Prospect	20.0							0	14	3	292	1	34			4	200	1	11
Arlington Heights	22.8					3	389	0	12	2	176	0	15	2	265	5	134	3	20
Arlington Heights Transfer	*22.8*											*89*			*89*				
Arlington Park	24.4			1	279	2	90	0	8	4	110	3	70			0	134	1	8
Palatine	26.4			19	326			0	14	9	176	1	108			2	151	4	19
Barrington	31.9		19			6	195		9	15	69	1	4	1	180	6	71	0	10
Fox River Grove	37.3					0	26			0	26	0	0	0	40	0	14	0	2
Cary	38.6					0	102			2	48	0	5	2	77	1	34	1	6
Pingree Road	41.7					0	60			0	17	0	8	0	47	0	31	0	13
Crystal Lake	43.2			3	323					11	34		9		124	3	29		11
McHenry Branch	50.6						25												
Woodstock	51.6			0	149					0	32					4	24		
Harvard	63.1				82						19						12		
Total Passengers		474	474	1,159	1,159	916	916	480	480	1,010	1,010	786	786	833	833	846	846	404	404
Maximum Load			456		1,136		887		447		955		654		817		809		363
Maximum Load Point			Ogilvie Transp. Ctr		Ogilvie Transp. Ctr		Ogilvie Transp. Ctr		Clybourn		Ogilvie Transp. Ctr		Ogilvie Transp. Ctr		Clybourn		Ogilvie Transp. Ctr		Clybourn
Intermediate Passengers			18		23		29		43		55		132		21		37		45
Passenger Miles			5,641		41,575		25,683		6,758		25,769		10,924		25,425		22,139		6,349
Average Trip Length			11.9		35.9		28.0		14.1		25.5		13.9		30.5		26.2		15.7

Blank cells are non-stops.

Arrival at Crystal Lake	n/a	6:16	n/a	n/a	6:49	7:20	7:08	7:38	7:58

Station/Train Passenger Count:

Union Pacific Northwest Line Outbound

Thursday, November 9, 2

	Train:	657		659		661		663		665		601	
	Depart:	7:30 PM		8:30 PM		9:30 PM		10:30 PM		11:30 PM		1:11 AM	
	Arrive:	8:55 PM		10:20 PM		11:20 PM		11:55 PM		12:55 AM		2:20 AM	
Station	Mile Post	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs
Ogilvie Transportation Center	0.0	526		344		179		162		128		39	
Clybourn	2.9	17	4	6	0	4	0	9	2	9	1	5	1
Irving Park	7.0	4	15	8	7	5	0	4	4	2	0	6	0
Jefferson Park	9.1	17	11	10	1	9	0	4	3	2	1	0	1
Gladstone Park	10.1	0	8	1	1	0	1						
Norwood Park	11.4	1	10	0	8	2	0	0	3	1	6	0	2
Edison Park	12.6	1	18	1	19	4	4	2	4	0	3	0	2
Park Ridge	13.5	0	21	0	18	0	4	1	4	1	1	1	3
Dee Road	15.0	4	15	0	14	0	0	0	3	0	5	0	1
Des Plaines	17.1	9	30	3	19	4	12	3	7	0	9	0	4
Des Plaines Transfer	*17.1*												
Cumberland	18.6	1	19	0	17	0	3	0	8	0	3	0	1
Mount Prospect	20.0	0	48	4	35	0	23	1	15	0	10	0	4
Arlington Heights	22.8	1	76	1	37	0	42	1	31	0	19	2	5
Arlington Heights Transfer	*22.8*												
Arlington Park	24.4	0	46	1	41	0	32	0	11	0	15	0	5
Palatine	26.4	3	80	4	33	13	29	1	23	0	9	1	6
Barrington	31.9	2	60	0	24	0	18	0	28	1	16	0	1
Fox River Grove	37.3	0	17	1	10	0	7	0	3	0	3	0	1
Cary	38.6	1	27	0	18	1	8	0	17	1	5	0	2
Pingree Road	41.7	0	28	2	24	0	9	0	6	0	13	0	1
Crystal Lake	43.2		54	1	35	0	14		16		26	0	6
McHenry Branch	50.6												
Woodstock	51.6			0	16	1	7					0	1
Harvard	63.1				10		9						7
Total Passengers		587	587	387	387	222	222	188	188	145	145	54	54
Maximum Load			539		360		198		170		139		49
Maximum Load Point			Clybourn		Jefferson Park		Norwood Park		Jefferson Park		Jefferson Park		Irving Park
Intermediate Passengers			61		43		43		26		17		15
Passenger Miles			14,338		10,076		5,689		4,749		3,980		1,476
Average Trip Length			24.4		26.0		25.6		25.3		27.4		27.3

Blank cells are non-stops.

Arrival at Crystal Lake 8:55 9:51 10:51 11:55 12:55 1:51

V – Projected Station Generated Trips

To project traffic volume in a Build condition (that is, with the construction of the proposed UP-NW line parking and station expansions) it is necessary to determine the traffic volume likely to be attracted to and from the Metra stations as a result of the UP-NW Line upgrades. Please note that from a system-wide perspective, these are not 'new' trips, rather they are trips that will divert from the existing travel pattern and mode to the use of the UP-NW line. In this regard, the station generated trips are only 'new' to the study area. This projection process is conducted in two major steps:

- Trip Generation: Determination of the number of trips in/out of the parking expansion areas
- Trip Distribution and Assignment: Determination of the likely route that these trips will use to enter/exit the parking expansion areas.

5.1 Trip Generation

The trip generation analysis is based on a combination of assumptions about the mode of travel to/from the parking expansion areas and passenger turnover data along the UP-NW line. 75 percent of the new ridership will arrive by automobile. Of that 75 percent, 64 percent will park at the station (producing two daily trips – one in, one out), while 11 percent will drop off and pick up passengers (producing four daily trips – one in, one out in the AM and one in, one out in the PM). This is equates to 85 percent of all automobiles trips parking at the station and 15 percent dropping off and picking up passengers. In addition, 95 percent of the parking spaces will be occupied by one vehicle during the day.

These assumptions were applied to a separate analysis of boardings and alighting passenger volumes on the UP-NW line during different time periods, which was used to estimate the likely turnover of passengers (and thus vehicles) at each station depending on the peak hour of traffic. As shown in **Table 5.1**, the boarding and alighting volumes at Woodstock Station were compared to the daily boarding and alighting to determine the percentage of turnover in each period. For each peak period, the heavy directional movement turnover was utilized (i.e. inbound trains (entering) in the AM) and cross-referenced with the peak hour period determined from the existing traffic counts. Please note that in many cases, this isn't the highest time period for turnover. However, as this is a traffic impact study and these values correspond with the heaviest period for traffic volume (and therefore, the period when the surface street system is under the greatest stress), these turnover rates were used.

Table 5.1 Boarding and Alighting Turnover Passenger Volumes and Rates

Time Period	Enter		Exit	
	Passenger Volume	% of Daily Total	Passenger Volume	% of Daily Total
AM Peak Period (Inbound Trains)				
6:30 – 7:30 AM	186	40.8%	0	0.0%
6:45 – 7:45 AM	83	18.2%	0	0.0%
7:00 – 8:00 AM	124	27.2%	0	0.0%
PM Peak Period (Outbound Trains)				
5:00 – 6:00 PM	0	0.0%	130	30.7%
5:15 – 6:15 PM	0	0.0%	52	12.3%
5:30 – 6:30 PM	0	0.0%	201	47.4%
Daily Period				
All Service Hours	456	N/A	424	N/A

Therefore, the vehicular trip generation calculation for Woodstock Station is as follows:

AM Peak Hour

Total Enter = Drive in + Drop off (in)

Total Exit = Drop off (out)

where,

Drive in = 95% x # of parking spaces x AM peak hour turnover rate

Drop off (in) = (Drive In/85%)-Drive In

Drop off (out) = (Drive In/85%)-Drive In

PM Peak Hour

Total Enter = Drive Out + Pick Up (out)

Total Exit = Pick Up (in)

where,

Drive Out = 95% x # of parking spaces x PM peak hour turnover rate

Pick Up (out) = (Drive Out/85%)-Drive Out

Pick Up (in) = (Drive Out/85%)-Drive Out

Table 5.2 shows the resulting trip generation results for each parking area based on these calculations and the current parking space projections for each parking area.

Table 5.2 Trip Generation Analysis Results

Parking Area	Number of Parking Spaces	AM Peak Hour (7:00-8:00)		PM Peak Hour (5:00-6:00)	
		Enter	Exit	Enter	Exit
Parking Area 1	214	65	10	11	73
Parking Area 2	127	39	6	7	44
Parking Area 3	512	155	23	26	175
Total	853	259	39	44	293

5.2 Trip Distribution and Assignment

The trip generation volumes for each parking area for each peak hour were then assigned to the study area roadway network and intersection movements using a distribution analysis. This distribution analysis was based on a combination of analysis of turning movement volumes at the study area intersection and consideration of land use and surrounding development patterns. The resulting distribution is illustrated in **Figure 5.1**, while the station generated volume movements at each study area intersection are presented in **Figures 5.2** through **5.3**. Please note that due to the different locations of the parking areas, the trip assignment component was run separately for each parking area.

Metra NW Line Trip Generation
1/25/2010

Station	Parking Area	Spaces	AM Peak Hour							PM Peak Hour						
			Traffic Peak	Turnover Rate [1]	DRIVE IN	DROP IN	DROP OUT	TOT IN	TOT OUT	Traffic Peak	Turnover Rate [1]	DRIVE OUT	DROP IN	DROP OUT	TOT IN	TOT OUT
Palatine	1	333	7:00 - 8:00	40.20%	127	22	22	**149**	**22**	5:00 - 6:00	28.20%	89	16	16	**16**	**105**
	2	580	7:00 - 8:00	40.20%	222	39	39	**261**	**39**	5:00 - 6:00	28.20%	155	27	27	**27**	**182**
	3	509	7:00 - 8:00	40.20%	194	34	34	**228**	**34**	5:00 - 6:00	28.20%	136	24	24	**24**	**160**
	TOTAL	**1422**	**7:00 - 8:00**	**40.20%**	**543**	**96**	**96**	**639**	**96**	**5:00 - 6:00**	**28.20%**	**381**	**67**	**67**	**67**	**448**
Barrington	1	525	7:00 - 8:00	25.80%	129	23	23	**152**	**23**	5:00 - 6:00	26.00%	130	23	23	**23**	**153**
	2	28	7:00 - 8:00	25.80%	7	1	1	**8**	**1**	5:00 - 6:00	26.00%	7	1	1	**1**	**8**
	TOTAL	**553**	**7:00 - 8:00**	**25.80%**	**136**	**24**	**24**	**160**	**24**	**5:00 - 6:00**	**26.00%**	**137**	**24**	**24**	**24**	**161**
Fox River Grove	1,2,3	677	6:30 - 7:30	34.40%	221	39	39	**260**	**39**	5:00 - 6:00	31.90%	205	36	36	**36**	**241**
	4,5	57	6:30 - 7:30	34.40%	19	3	3	**22**	**3**	5:00 - 6:00	31.90%	17	3	3	**3**	**20**
	TOTAL	**734**	**6:30 - 7:30**	**34.40%**	**240**	**42**	**42**	**282**	**42**	**5:00 - 6:00**	**31.90%**	**222**	**39**	**39**	**39**	**261**
Cary	1	61	6:45 - 7:45	44.00%	25	4	4	**29**	**4**	5:00 - 6:00	35.10%	20	4	4	**4**	**24**
	2,3,4	201	6:45 - 7:45	44.00%	84	15	15	**99**	**15**	5:00 - 6:00	35.10%	67	12	12	**12**	**79**
	TOTAL	**262**	**6:45 - 7:45**	**44.00%**	**110**	**19**	**19**	**129**	**19**	**5:00 - 6:00**	**35.10%**	**87**	**15**	**15**	**15**	**102**
Pingree	1	1150	7:00 - 8:00	45.60%	498	88	88	**586**	**88**	5:00 - 6:00	22.50%	246	43	43	**43**	**289**
	TOTAL	**1150**	**7:00 - 8:00**	**45.60%**	**498**	**88**	**88**	**586**	**88**	**5:00 - 6:00**	**22.50%**	**246**	**43**	**43**	**43**	**289**
Prarie Grove (New Station)	1	500	7:00 - 8:00	45.60%	217	38	38	**255**	**38**	5:00 - 6:00	35.10%	167	29	29	**29**	**196**
	TOTAL	**500**	**7:00 - 8:00**	**45.60%**	**217**	**38**	**38**	**255**	**38**	**5:00 - 6:00**	**35.10%**	**167**	**29**	**29**	**29**	**196**
McHenry	1	341			0	0	0	**0**	**0**			0	0	0	**0**	**0**
	2	47			0	0	0	**0**	**0**			0	0	0	**0**	**0**
	TOTAL	**388**	**0-Jan**	**0.00%**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00%**	**0**	**0**	**0**	**0**	**0**
Johnsburg (New Station)	1	500	7:00 - 8:00	45.60%	217	38	38	**255**	**38**	5:00 - 6:00	35.10%	167	29	29	**29**	**196**
	2	1000	7:00 - 8:00	45.60%	433	76	76	**509**	**76**	5:00 - 6:00	35.10%	333	59	59	**59**	**392**
	TOTAL	**1500**	**7:00 - 8:00**	**45.60%**	**650**	**115**	**115**	**765**	**115**	**5:00 - 6:00**	**35.10%**	**500**	**88**	**88**	**88**	**588**
Ridgefield (New Station)	1	600	7:00 - 8:00	27.20%	155	27	27	**182**	**27**	5:00 - 6:00	30.70%	175	31	31	**31**	**206**
	TOTAL	**600**	**7:00 - 8:00**	**27.20%**	**155**	**27**	**27**	**182**	**27**	**5:00 - 6:00**	**30.70%**	**175**	**31**	**31**	**31**	**206**
Ridgefield Alt 2	1	600	7:00 - 8:00	27.20%	155	27	27	**182**	**27**	5:00 - 6:00	30.70%	175	31	31	**31**	**206**
	TOTAL	**600**	**7:00 - 8:00**	**27.20%**	**155**	**27**	**27**	**182**	**27**	**5:00 - 6:00**	**30.70%**	**175**	**31**	**31**	**31**	**206**
Woodstock	1	214	7:00 - 8:00	27.20%	55	10	10	**65**	**10**	5:00 - 6:00	30.70%	62	11	11	**11**	**73**
	2	127	7:00 - 8:00	27.20%	33	6	6	**39**	**6**	5:00 - 6:00	30.70%	37	7	7	**7**	**44**
	3	512	7:00 - 8:00	27.20%	132	23	23	**155**	**23**	5:00 - 6:00	30.70%	149	26	26	**26**	**175**
	TOTAL	**853**	**7:00 - 8:00**	**27.20%**	**220**	**39**	**39**	**259**	**39**	**5:00 - 6:00**	**30.70%**	**249**	**44**	**44**	**44**	**293**
Harvard [2]	1,5,6,7,8	275	7:00 - 8:00	35.40%	92	16	16	**108**	**16**	5:00 - 6:00	20.00%	52	9	9	**9**	**61**
	2,3,4	159	7:00 - 8:00	35.40%	53	9	9	**62**	**9**	5:00 - 6:00	20.00%	30	5	5	**5**	**35**
	TOTAL	**434**	**7:00 - 8:00**	**35.40%**	**146**	**26**	**26**	**172**	**26**	**5:00 - 6:00**	**20.00%**	**82**	**14**	**14**	**14**	**96**

(1) Turnover rates determined by calculating passengers on (AM) and off (PM) relative to daily total for each potential traffic peak hour. For new stations, turnover rates were pulled from turnover rates from adjacent stations - Praire Grove and Johnsburg used McHenry rates; Ridgefield used Woodstock rates

(2) PM 5-6 turnover rate at Harvard is 16.8%. However, a low cap of 20% is applied.

* Data Provided to Patrick Engineering by URS