The State of Pedestrian Safety in Chicago's Little Village Neighborhood

Mapping Hazard Areas and Pedestrian Assets

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GEO 442: GIS for Sustainable Urban Development

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PROJECT SUMMARY

This project was part of a partnership with DePaul University and local non-profits in the Chicago area to combine the skill of graduate students in a class at DePaul called GIS for Sustainable Urban development with local non-profits' needs for mapping. This particular report was performed by three graduate students in conjunction with the non-profit called Enlace Chicago, located in the Community Area of Chicago called Little Village, or South Lawndale. Enlace recently began an initiative to better understand where safe routes to school infrastructure and programs are most needed in Little Village.

The goal of this report is to collect and analyze indicator data for walkability in Little Village in order to show benefits and/or areas where walkability infrastructure improvement is needed. The results are shown with maps depicting the variabilities that potentially impact safety along school routes. GIS data analyses were performed on the collected data, and maps were created to show the results of the analyses. Hot spot analysis was used to depict pedestrian crash and violent crime data in Little Village, as these variables would have strong negative influence on walkability, especially for children. The community is extremely proud of their local gardens and parks, so we analyzed parks as a positive influence on walkability. A network analysis was performed to determine the shortest routes to the public parks located in Little Village from each of its schools, as children are likely to walk to a park after school before heading home.

Many indicators exist for walkability, and this report was created to be used as a starting point for Enlace's safe routes to school initiative since only three variables were analyzed. The outcomes of this report show statistically significant hot spots of crashes involving pedestrians and of violent crimes occurring near streets, alleys, and on sidewalks of Little Village. Based on our conclusions, California Ave, is an important thoroughfare for pedestrians travelling between the nearby parks and schools. West 26th Street was shown in both hot spot analyses to hold areas of concern where traffic calming measures should be taken. Increased pedestrian-friendly infrastructure should also be implemented along this street to reduce the crime rates as well as the traffic accidents shown in the maps created. Now that this report has analyzed these variables impacting safety along school routes, Enlace will be able to incorporate the findings into their efforts, providing many opportunities for future projects on this topic.

INTRODUCTION

The Little Village neighborhood of Chicago, known locally as La Villita and officially as South Lawndale, can easily be considered the cultural epicenter of Mexicans living in the Midwestern United States. Simply walking through its primary commercial corridor, West 26th Street, one will encounter countless street vendors, restaurants, and locally-owned retail that all show a strong sense of pride in heritage and community. With the Latino population making up 83% of the total, and with nearly half (48%) of all residents being foreign-born, it comes as no surprise that Little Village is widely considered to be the, "Capital of the Mexican Midwest," as well as the primary landing point for Mexican immigrants in the Midwestern US.

Little Village is also among the most densely-populated communities in Chicago, and on average, one of the youngest. This introduces a number of problems, such as overcrowded schools and

homes. Other issues, such as crime and unemployment (or underemployment) are also primary concerns for many local residents. However, the community shows almost unparalleled resilience and investment, and new organizations have been established over time to address these concerns. One of them, Enlace (which literally translates from Spanish to, "Link,"), is an organization that aims to promote the betterment of health, safety, and welfare of Little Village residents through all-encompassing means. Working with assets within their community, Enlace seeks to encourage economic development, educational attainment, and ultimately to create a safe, healthy environment for current and future residents of Little Village. One of their many projects in the community has been a partnership with the Active Transportation Alliance's (ATA) Safe Routes to School Coalition - a network of community-based and nonprofit organizations from throughout Chicago whose goal is to encourage local children to walk or bike to school through safety and infrastructure improvements.

Enlace has requested our assistance in their efforts to bring about a safer and healthier Little Village. Specifically, the organization has asked us to create informational maps that can be used as materials to distribute to the general public, as well as to lobby local government officials to provide additional resources for safety/infrastructure improvements. In this report, we will outline the tasks undertaken to deliver quality products on Enlace, as well as presenting suggestions for future geospatial analysis with regards to the efforts of the Safe Routes to School Coalition. First, we will lay out the particular needs of the project and the organization based on the requests made by Enlace, which will include both data requirements as well as an overview of the questions we aim to answer. Next, we will provide an overview of the data we obtained to complete the analyses, discussing specifically how the data will benefit our studies, as well as the constraints involved. The following step will be to present specifically the information products we plan to provide to Enlace, and to plan the data processing and analysis steps that will be required. After an overview of the preliminary results of each analysis and information product, we will finally discuss the implications of our findings and suggest future analyses that could benefit the organization.

NEEDS ASSESSMENT

Working with the Safe Routes to School Coalition, Enlace seeks to improve walking conditions for children in the Little Village neighborhood, specifically so they are able to safely travel to and from school. With that in mind, our final products must present answers to some basic questions regarding both hazards and assets to pedestrians (specifically school-aged children) in the neighborhood. These questions include:

- Are there areas in Little Village that have seen consistent patterns of automobile accidents involving pedestrians?
- Where have violent crimes most often occurred in the neighborhood? Where have there been fewer of these crimes?
- How can parks and green space be integrated into a safe routes plan for Little Village schools?

The first two questions address areas of particular concern with regards to pedestrian safety. In determining areas of concentrated crime or traffic accidents, we can find where improvements can be proposed to local government officials. With regards to the final question presented above, we feel that

parks are important asset to children in particular, and should be incorporated into any safe routes to school strategy. Additionally, focusing solely on a needs-based approach can lead to an unnecessary emphasis on the negative traits of a community. While it is appropriate to determine areas of concern, it is equally important to promote the use of existing infrastructure. In using parks as a potential resource for children's safety on their commutes to and from school, we can also show off some of Little Village's strongest community assets.

In addition to the general questions to be answered, there are also several basic requirements for the final information products. First, Enlace would like any maps we produce to be easily readable to the general public. Because they intend to incorporate these maps in presentations to City Council members, business leaders, teachers, parents, students, and other local stakeholders, they must be accessible to people of all ages and backgrounds. Therefore, we feel that it is best to produce maps that readily present results in the simplest manner possible (of course, without sacrificing necessary details), such as hotspot maps. In addition to readability, Enlace requested that the scope of the study only be the Little Village neighborhood. They would also like to see the locations and attendance boundaries of local schools - in particular elementary and middle schools, though we plan to incorporate high school locations, as well. We believe that it is important to also include a base layer of streets in Little Village as a way to more easily show the precise locations of certain hazard areas, if any exist.

DATA ACQUISITION & QUALITY REPORT

Introduction

After performing a geographic information needs assessment, our group explored different datasets relevant to Enlace's needs and chose a set of variables we believed were most critical. The datasets that will be analyzed in this report are: car crash data, park/green space locations, violent crime, and 311 Service Call Requests specifically looking at graffiti cases. Enlace and our team believes that there is a relationship between the locations of these events and the schools which would help in addressing the issues with safe routes to school. For each dataset, a data dictionary will be created, then the dataset's fitness for use will be explored, and finally, the data acquisition constraints will be discussed.

DATASET : VIOLENT CRIME NEAR STREETS IN LITTLE VILLAGE

Data Dictionary

This data was acquired to perform a hot spot analysis to find areas of concern for students walking to and from the schools. The file name for the dataset is "Crimes - 2001 to present" and was downloaded from the City of Chicago's open data portal, which is accessed through this url: https://data.cityofchicago.org/. The data is provided by the City of Chicago, and the data owner is the Chicago Police Department's CLEAR (Citizen Law Enforcement Analysis and Reporting) system. This dataset reflects reported incidents of crime (with the exception of murders where data exists for each victim) that occurred in the City of Chicago from 2001 to present, minus the most recent seven days.The

Research & Development Division of the Chicago Police Department can be contacted at 312.745.6071 or RDAnalysis@chicagopolice.org. To access a list of Chicago Police Department - Illinois Uniform Crime Reporting (IUCR) codes, go to http://data.cityofchicago.org/Public-Safety/Chicago-Police-Department-Illinois-Uniform-Crime-R/c7ck-438e.

The data in this set are updated daily. The dataset contains more than 65,000 records/rows of data, and around 15 columns. The data consists of preliminary information reported to the Chicago Police Department. Some data may not have been updated if changes in the original report changed. The attributes that were analyzed in this study include: Year, Primary Type, Location Description, Community Area, and XY Coordinates. Other attributes that were not used are: Date, ID, Case Number, Block, IUCR, Description, Arrest, Domestic, Beat, Ward, District, FBI Code, and Updated Date.

Since no shapefile comes with the data, shapefiles must be created. In the dataset on the website, the years 2014, 2015, and 2016 were searched for and each year was downloaded separately. The XY coordinates were then used to create a point shapefile for all crime data in Chicago for 2014 - 2016 (data downloaded on Feb 1, 2016). Then, using the Community Area attribute column, the data was narrowed to only points that occur within the South Lawndale boundary, and each year was saved as a separate file.

Fitness for use

The methods used to acquire the data contain some areas for error because the data comes with a sizeable disclaimer on the website: “These crimes may be based upon preliminary information supplied to the Police Department by the reporting parties that have not been verified. The preliminary crime classifications may be changed at a later date based upon additional investigation and there is always the possibility of mechanical or human error. Therefore, the Chicago Police Department does not guarantee (either expressed or implied) the accuracy, completeness, timeliness, or correct sequencing of the information and the information should not be used for comparison purposes over time. The Chicago Police Department will not be responsible for any error or omission, or for the use of, or the results obtained from the use of this information. All data visualizations on maps should be considered approximate and attempts to derive specific addresses are strictly prohibited. The Chicago Police Department is not responsible for the content of any off-site pages that are referenced by or that reference this web page other than an official City of Chicago or Chicago Police Department web page. The user specifically acknowledges that the Chicago Police Department is not responsible for any defamatory, offensive, misleading, or illegal conduct of other users, links, or third parties and that the risk of injury from the foregoing rests entirely with the user.

Data acquisition constraints

Despite the constraints in the existence of the disclaimer provided by the Police Department, this is still a good approximation of violent crimes in the Little Village area. This data is assessing the safety aspect of walking through Little Village neighborhood to one of its many schools. Therefore, even if some aspects of the exact crime were changed after the fact, it is still helpful to know that someone felt threatened enough to report a crime in this study. Finally, in our methods, we will make sure to use a hot spot analysis with a generous margin when looking at this data since the accuracy of the data is

only on the block level. The hot spot analysis will be an effective method to use, since it will still be able to show which blocks have the most violent crime activity in a more generalized sense versus looking at individual points, which as the data has told us may not be in the exact location as the crime.

DATASET: CHICAGO CAR ACCIDENTS 2010-2014

Data Dictionary

The data to be used to analyze automobile accidents involving pedestrians was obtained by request through the Illinois Department of Transportation. Charles Adams, the Data Services Manager, is the primary contact for any inquiries pertaining to this dataset, and can be reached by phone at (217)785-2077 or email at Charles.Adams@illinois.gov. Overall, we retrieved five separate datasets, one for each year between 2010 and 2014, all being shapefiles containing point data. Because the shapefile contains information on every car accident in Chicago, significant processing will be required. Additionally, there are numerous attributes, but only one of which, Coll Type, will be used for the purposes of this study. This particular attribute identifies the type of collision that occurred, such as automobile, pedestrian, property, etc. However, for this study, we will only be observing events with the "Pedestrian," value.

Fitness for use

In examining the metadata, as well as the data using ArcMap, we have found very few problems with this dataset going forward. In reducing the amount of points down to those only included within Little Village, there were no issues in joining the basemap tables with the crash tables, and the points lined up exactly with the layer added to illustrate the streets in the community. Additionally, we were able to successfully merge the attribute tables of all five years in order to simplify the process going forward. The precision of the data points' locations is also very high-quality, with coordinate decimal systems reaching six digits, and when overlaid on a basemap, the points align perfectly with the appropriate streets. In terms of accuracy, the attributes showed no missing or unusual values. The crash data is updated annually, though the 2015 set has yet to be released, making the 2014 set the latest version for analysis. Overall, the crash data is the best we could ask for in terms of quality and fitness for use; after a few short processing steps, it will be ready for analysis.

Data Acquisition Constraints

The primary constraint in obtaining the datasets was that they cannot be directly downloaded from the internet. However, while the data itself is not readily available on IDOT's website, it can be easily obtained by a simple request form that can be submitted online. Mr. Adams, the Data Services Manager, responded very quickly to our request, and no problems were found upon downloading and utilizing the data.

DATASET: CHICAGO PARK LOCATIONS

Data Dictionary

The park location data were obtained through the City of Chicago Data Portal, and were created and are maintained by the Chicago Park District. Instead of a shapefile, this dataset is a table that lists all the facilities within a park, and includes their X and Y coordinates so as to be easily included in a map, in which case they would be points. Attributes in the dataset include the facility name, the facility type (e.g., senior center, basketball court, tennis court, playground, and so on), whether the facility is indoor or outdoor, and finally, the locations of the facilities.

Fitness for use

Because it includes a list of facilities, rather than just the location of the parks themselves, each park will actually be represented by multiple points, rather than just one. This, however, can be easily fixed by performing a mean center calculation on ArcMap, which will find the centroid for all of the park facilities, and can be represented as the singular park location. Furthermore, in terms of data quality, the positional accuracy of the points is nearly perfect when compared to a basemap. Additionally, the the positions are also very precise, with decimal places on the coordinates reaching the hundred-thousandth of a degree. The attributes themselves, aside from the locations, are all qualitative, so no values could be considered "unusual" or "outliers," but there were no missing attributes, leading us to believe that this particular dataset is of high quality and ready to be used after some basic processing steps.

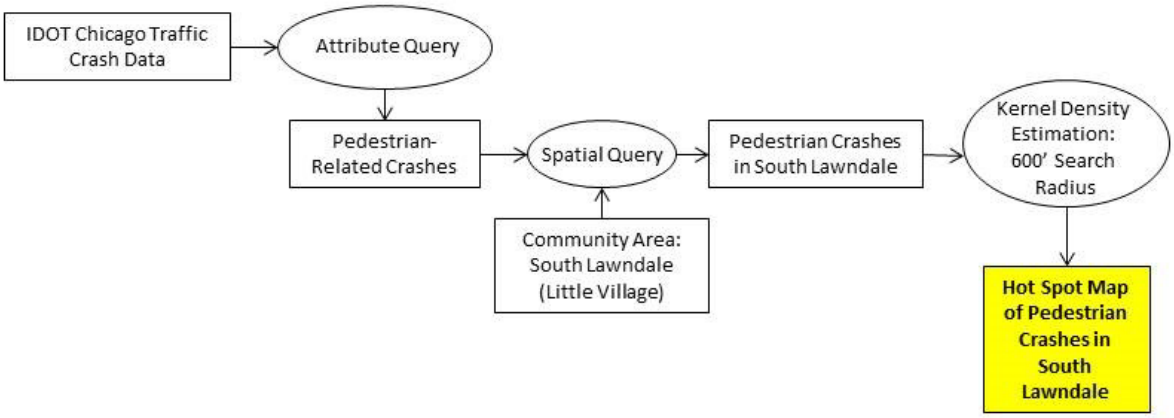
Data acquisition constraints

Aside from the minor problem with the parks being represented by their multiple facilities, there were no serious additional constraints with obtaining the park data.

METHODS AND INFORMATION PRODUCTS

HOTSPOTS OF PEDESTRIAN TRAFFIC ACCIDENTS, 2010-14

The first information product we propose will depict areas of concentrated automobile accidents involving pedestrians, using the aforementioned Chicago crash data obtained from IDOT for the years 2010 - 2014. We intend to include various map elements, such as streets within the



neighborhood and school attendance boundaries, in order to best depict the location of "hot spots." We will also include the individual locations of each pedestrian-involved car accident, so as to illustrate where exactly these have occurred.

Before creating a graphic representation of these hot spots, however, it will first be necessary to conduct a spatial analysis of the event data (i.e., pedestrian-involved car accidents). To do this, we will perform an average nearest-neighbor analysis on ArcMap. This process measures the distance between all points and the point nearest to them, averaging the distance to determine whether there are in fact statistically significant hot spots. If hot spots do exist, we would then move forward to a kernel density analysis. This particular function creates raster data of hotspots based on a specified search radius around each point. After performing the average nearest-neighbor analysis, we will have a rough idea of the most appropriate radius to use. However, the search radius does not have to be the same as the result of the nearest-neighbor distance; if a larger or smaller value better illustrates the hot spots, then it can be used simply for aesthetic purposes. Overall, a process for the kernel density can be found below, which includes the initial basic data processing steps that will give us only the pedestrian-related incidents only in Little Village:

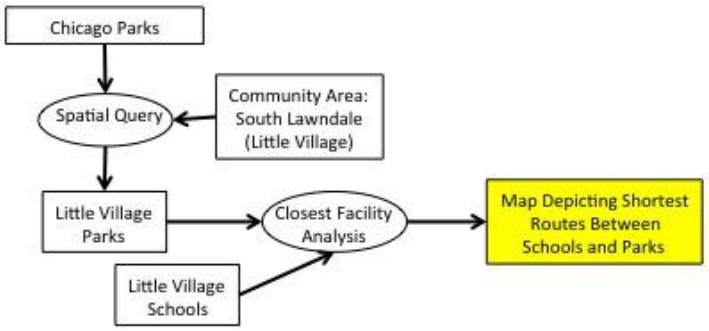
HOT-SPOTS OF VIOLENT CRIME IN LITTLE VILLAGE BY YEAR SINCE 2014

The second information product we will create is heat maps of violent crimes near streets since 2014 that could affect the perception of safety in those areas. We analyzed violent crimes instead of graffiti because violent crimes are more likely to be a barrier to walkability. For graffiti, we created a map that shows the graffiti cases and the school locations. However the data did not appear to be clustered, so no hot spot analysis was performed. Two of these maps will be created, one for 2014 and one for 2015. Each has a radius of 600 ft, which was decided upon after doing a nearest neighbor analysis which found the mean distance between crime events to be between 126 and 215 feet. Since the data points are only accurate to the block level, a much wider radius was used to create the hot

spots. The 600 ft radius was also used in the pedestrian crash maps for consistency. The 2016 data is shown as points, since a hot spot analysis may be misleading since there is only roughly a month of data in this year so far. The first, third, and second maps will all have the same base layer features: streets, and the Little Village boundary, the schools and the elementary school boundaries.

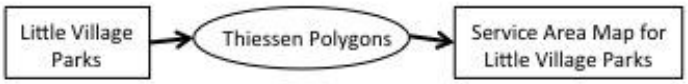
The above diagram shows the method for 2014, but the method was the same for 2015 as well. First, data was obtained from the City of Chicago Data Portal. From this website, the databases entitled "crimes-2014", "crimes-2015", and "crimes-2016" were downloaded, and their XY coordinates were used to create point shapefiles shown on the far left of the diagram (Chicago Crime Data 2014-2016) with the x-y location tool. Then a query was performed on the points located within the South Lawndale boundary to find the violent crimes - Crime Type: Assault, Battery, Sexual Assault, Homicide, Kidnapping, Offense Involving Children, and Sex Offense - that occurred in each year on a street, sidewalk, or alley

(Location Description). Three new shapefiles were created from the results of these queries for each year. Lastly, a hot-spot map was created using the Kernel Density Estimation (using 600ft for each year). The data for 2016 was left as point data and did not have a hot spot analysis performed since it would not be helpful to compare 2 full years of data to about one month.



NETWORK ANALYSIS OF PARKS

As previously noted, we are including data on park locations due to a specific request from Enlace to showcase community assets rather than only mapping hazards. Therefore, our final information products will be two different network analyses of parks. The first process, as seen on the left, is a closest facility analysis, which will present the shortest distance (using Manhattan, or street-based, measurements) between schools and parks. Calculating the closest facility analysis in regards to Little Village public parks and public schools is an effective tool for many reasons. Closest facility analysis produced the shortest routes between these two variables. Analysis of these routes can be used to determine prefered or priority routes upon which safe routes to school techniques can be implemented to compliment community assets such as parks. Parks have a positive impact in terms of safety because they can be used as tools to improve public health (physical activity), as well as other urban planning benefits such as recreational interests, connecting patrons to green spaces, and last but not least a commonplace to hold community engagement functions.



The following network analysis with regards to parks is a Thiessen polygon analysis, which maps "service areas" for parks based on the distance between each of them. The process for which can be seen on the right. When paired with population density data, this could be of particular use not only for Enlace, but also for the Chicago Park District, to determine which parks should receive more resources based on their potential use. Additionally, these polygons can supplement the previous network analysis, showing which schools fall into the parks' service areas.

Processing Constraints

In the CBO1 report, we had noted several methods of both finding problem areas along pedestrian routes and determining the safest routes to school. The information products outlined above address a number of these issues, but there were several other variables that, due to time and data

constraints, we were unable to incorporate. For example, we had originally intended on finding the most frequently-traveled routes taken by local kids to get to school based on survey data collected by Enlace. However, upon examination of the data, we noticed that the information was qualitative and not standardized. Because of this, we were unable to incorporate the information.

We were also unable to find possible safest routes in the community due to data and time constraints. Route safety can be influenced by a number of variables, and we did not have time to analyse all factors that might affect a route to school in this study. Therefore, this report shows a few examples of problem areas - violent crime and pedestrian-related car crashes- to avoid and one characteristic that contributes to encouraging walkability - park space near schools. The focus of the project shifted slightly from mapping real or potential safe routes to finding influential characteristics that can be addressed by Enlace and other local organizations and government officials. Therefore, the overall goal is not to encourage a change in behaviors (walking routes), but rather to improve the conditions of routes already taken. Possible expansion to this study would be to perform an analysis of the survey data from Little Village school children on the specific routes they take walking home. With that data, popular walking routes could be aligned with public infrastructure such as the public parks displayed here.

RESULTS

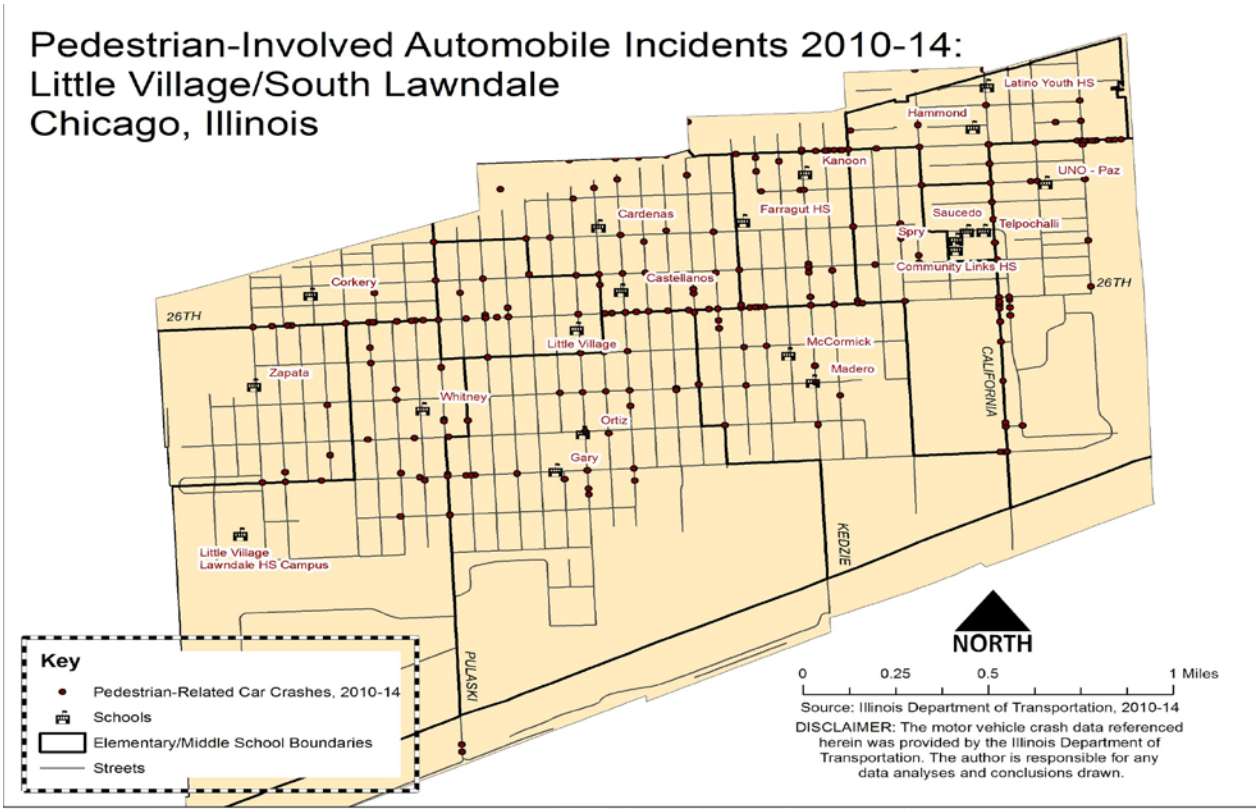
TRAFFIC ACCIDENTS INVOLVING PEDESTRIANS, 2010-14

As previously mentioned, the first step in determining traffic accident hot spots was an average nearest-neighbor analysis. After simply mapping the point data for the incidents across five years, it can easily be seen in Figure 1 that there are a couple areas of accident concentration, particularly around West 26th Street. However, visual interpretations aside, it is necessary to see whether these perceived hotspots are significant, and not simply a product of chance. The results of the average nearest-neighbor analysis, then, are as follows:

- Expected Average Nearest Neighbor Distance: 298.312 ft.
- Observed Average Nearest Neighbor Distance: 154.128 ft.
- Z-Score: -15.94
- P-Value: <0.0001

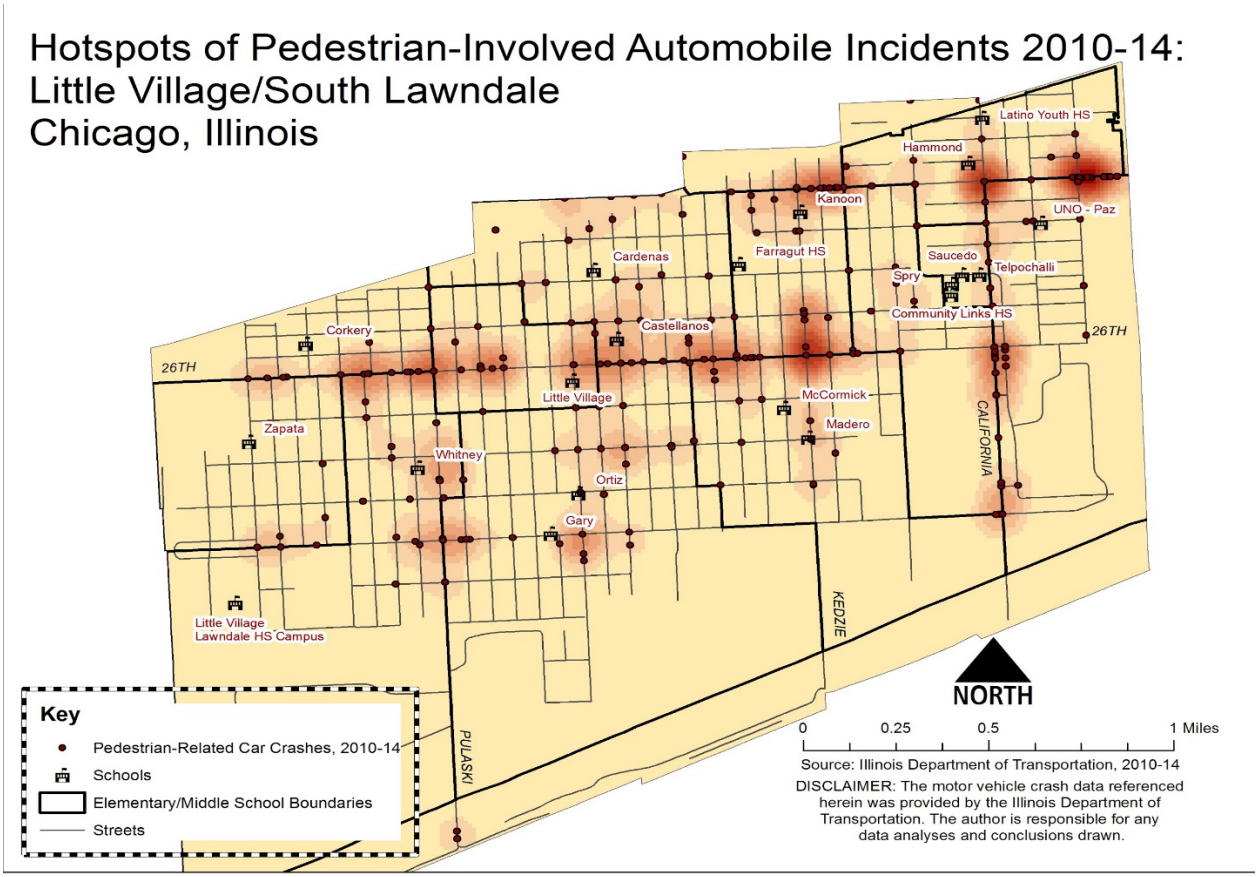
The average distance between one incident and its nearest neighbor is just over 150 feet, nearly half of the expected distance of roughly 300 feet. Additionally, we can conclude that these results are statistically significant, with a z-score greater than -1.96, and we can also conclude that the results are not simply due to chance due to an extremely low p-value, which was so small that the result was shown as 0.0000 in the report. These results suggest that a kernel density analysis is not only appropriate, but necessary to visually show where the hotspots are located.

Figure 1:



In conducting a kernel density estimate, it is necessary to determine an appropriate search radius. After performing the average nearest-neighbor analysis, we found that pedestrian accidents occurred on average within 150 feet of each other, and that there were statistically significant hot spots of these accidents in the community. Using the 150' search radius for the kernel density, however, we found that it did not adequately illustrate the hot spots in the community because it only showed very small areas around each point. Using that as a minimum, we determined a maximum search radius to be roughly half the distance across Little Village (east to west), or about one mile. This value, however, did not work quite as well, either; rather than showing hot spots, it basically created a uniform color across the entire community, with a slightly darker shade in between. Finally, after trying a few more sample search radii, we found that the most ideal length would be 600 feet. As seen in the Figure 2, this value best presents hot-spots concentrated around streets, rather than major swaths of the community. In our opinion, this more accurately illustrates the phenomenon because these accidents happen exclusively on or near streets.

Figure 2:



As seen above, the areas of highest accident concentration can be found along almost the entirety of West 26th Street, which is a highly-traveled corridor for both automobiles and pedestrians, as well as the main business corridor for the neighborhood. Additionally, California Ave and Cermak Ave are also areas of concern particular concern. Schools that may be most impacted by these hotspots include Corkery, Little Village, Castellanos, McCormick, Kanoon, Hammond, and UNO-Paz.

HOT SPOTS OF VIOLENT CRIME, 2014 TO PRESENT

Like the pedestrian crash data, an average nearest-neighbor analysis was performed for 2014 and 2015 violent crime data to determine the radius for the crime hot spots. The average nearest neighbor results for 2014 and 2015 found are in the table below. Both years found a nearest distance in the range of 118 to 230 feet. However, the metadata of this data set explained that for safety reasons, the addresses given are not exact, and are randomly placed along the street within the block of the actual data. Therefore, the radius of 600 ft was used to more clearly show the hot spots, as well as to keep consistent with the hot spot radius found for the pedestrian crashes. Also similar to the pedestrian data, we can conclude that the heat maps shown are significant because the p-values are less than 0.0001 and the z-scores are greater than -1.96. These hot spot results are then not due to chance, and the radius used for the kernel density maps for the violent crime data was also an appropriate and necessary way to visually portray this data.

Table 1.

2014		*2015*	
Expected Nearest Neighbor Distance	*215.55 ft*	*Expected Nearest Neighbor Distance*	*231.15 ft*
Observed Nearest Neighbor Distance	*126.55 ft*	*Observed Nearest Neighbor Distance*	*118.83 ft*
Z-Score	*-17.039*	*Z-Score*	*-22.115*
P-Value	*0.000000*	*P-Value*	*0.000000*

With this radius, Figures 3 and 4 below were created depicting areas of concern for violent crimes located on streets, alleys or sidewalks. In 2014, there appeared to be a higher frequency of less severe violent crime hot spots, while in 2015, only a few areas of concern appear in the hot spot analysis. These maps show two overlapping areas of concern occurring in both 2014 and 2015. Both years show heavy violent crime activity along 26th Street with two large hot spots near the intersections of Kedzie as well as just west of Pulaski. The Kedzie and 26th hot spot is within a quarter mile of Community Links High School, Spry, McCormick, Madero, and Farragut High School. This intersection is therefore one that requires attention since many students most likely pass near this intersection.

The other main area of concern shown by the hot spot analysis occurs near the intersection of 26th and Pulaski. Two hot spots appear in 2014, and in 2015, this is where the darkest hot spot appears. This hot spot is between a quarter and a half mile from the nearest schools of Whitney, Little Village, Corkery, and Zapata, with Whitney and Corkery being the closes to the center of the 2015 hot spot. Though this area is not dangerously close to any schools, it would still be important to address this area with pedestrian friendly measures since it is most likely often used in students' routes to these schools.

The far northeast corner of Little Village is also an area that is seeing some violent crime activity, though it is less frequent than the previously mentioned intersections and lessened considerably in 2015. The schools closest to these hot spots of violent crime are: Latino Youth High School, Hammond, Uno-Paz, Telpochcalli, Saucedo, Spry and Kanoon. From this analysis, the violent crime in Little Village seems to be overall less in 2015 compared to 2014, with 2015 really only having a few heavy areas of concern.

Figure 3:

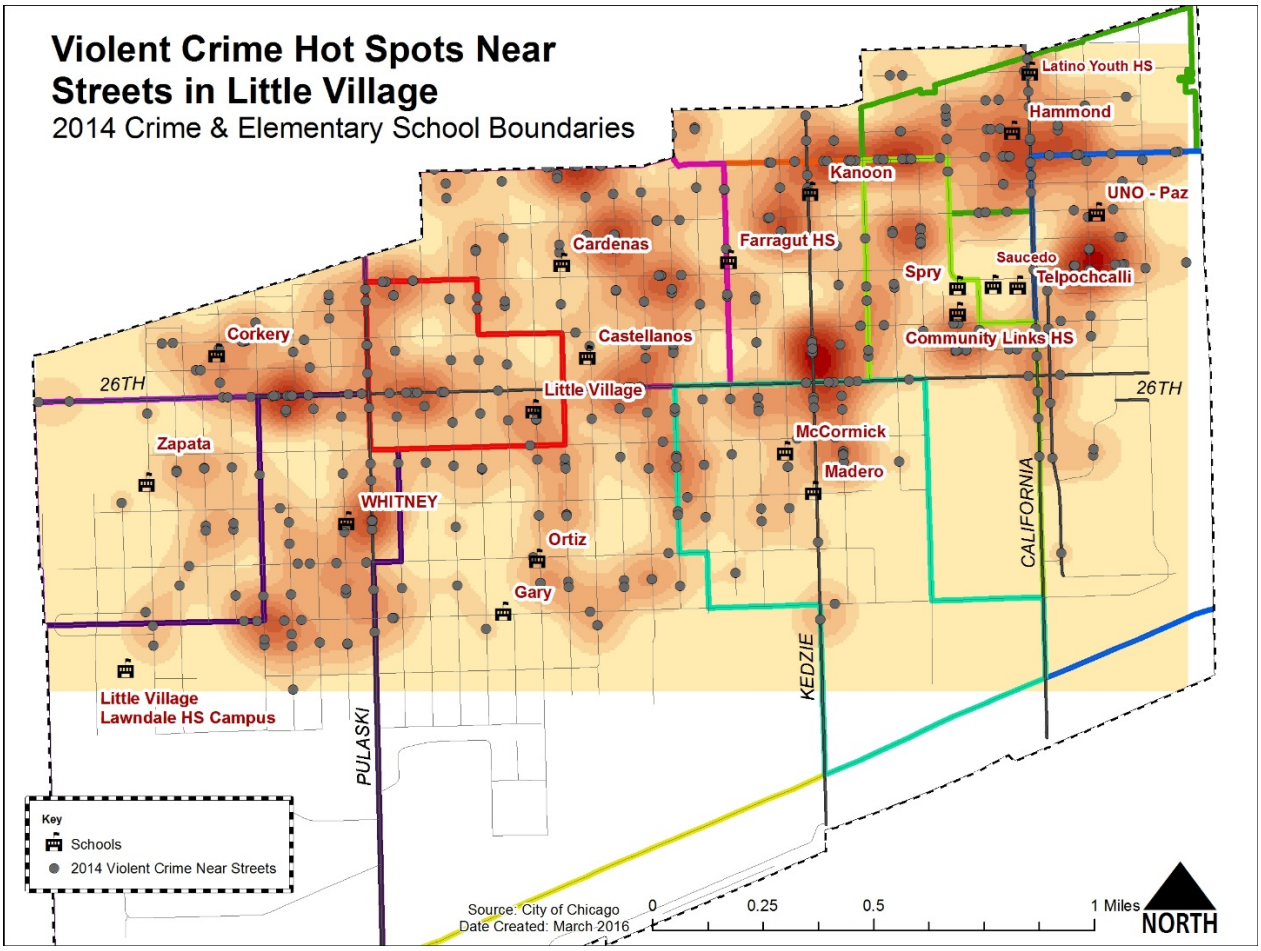
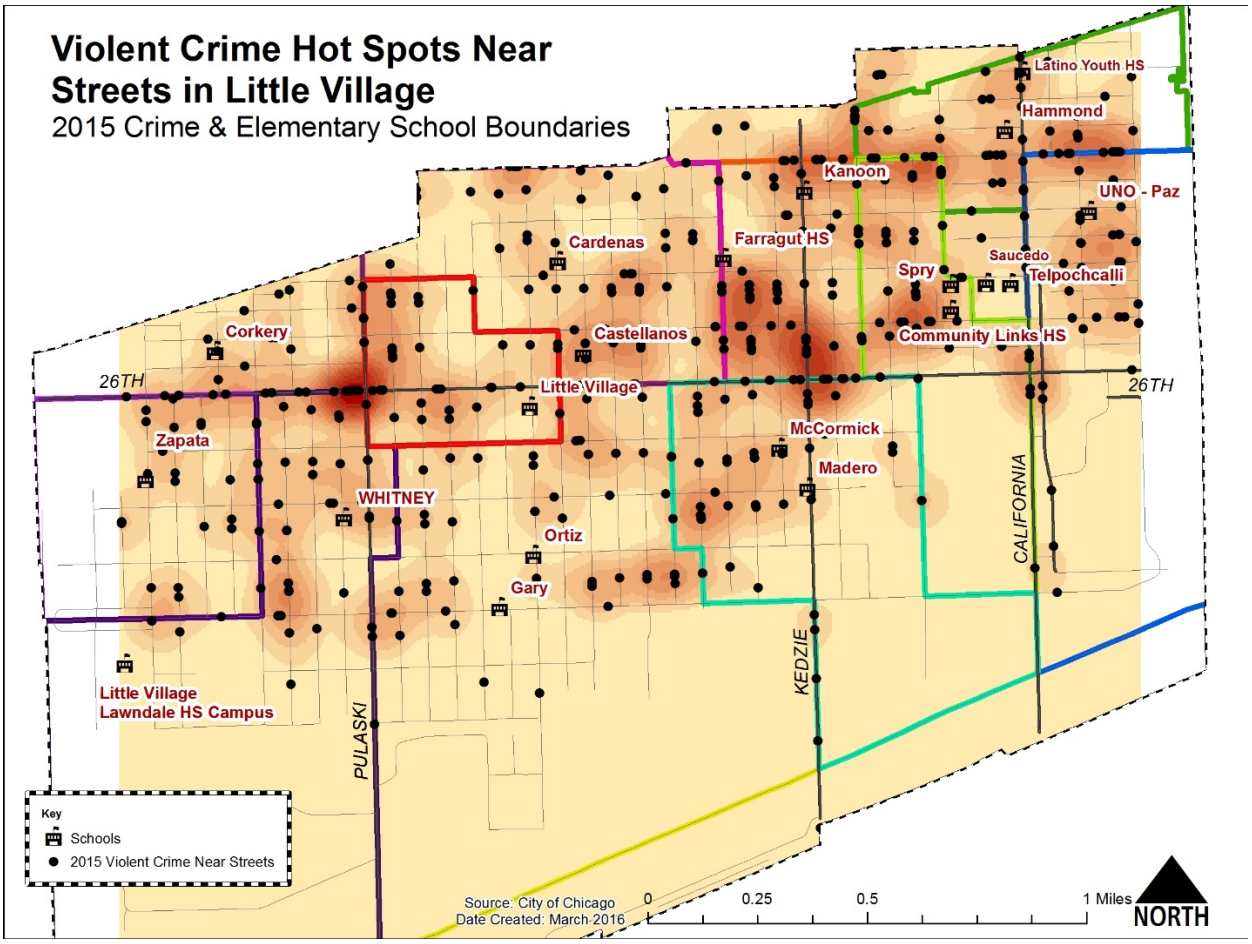

Violent Crime Hot Spots Near Streets in Little Village
2014 Crime & Elementary School Boundaries
Latino Youth HS
Hammond
Kanoon
UNO - Paz
Cardenas
Farragut HS
Saucedo
Spry
Telpochcalli
Corkery
Castellanos
Community Links HS
26TH
Little Village
26TH
Zapata
McCormick
Madero
WHITNEY
CALIFORNIA
Ortiz
Gary
KEDZIE
Little Village Lawndale HS Campus
PULASKI
Key
Schools
2014 Violent Crime Near Streets
Source: City of Chicago
Date Created: March 2016
0
0.25
0.5
1 Miles
NORTH

Figure 4:



NETWORK ANALYSIS OF PARKS

The implications drawn from the maps produced include a hierarchy or classification of specific high impact areas in relation to walkability. Public infrastructure such as public parks have a positive reflection on walkability, therefore, identifying which parks (in this case a community asset) have the most schools in their particular service area makes them more valuable than others in this specific instance. Taking it one step further, the closest facility analysis map provided actual routes from each school to the closest park. Analysis from this map highlighted a specific street that play a part in 6 schools in the designated area (30%) - California Avenue. If California Avenue were to be made more safe using safe routes to school techniques, it would have the potential to be a major contributor to safe routes; more than any other street in South Lawndale (Little Village). Another effective tool that both of these maps can be used for is the application of overlaying these maps with crime and pedestrian accident data. Subsequent analysis will provide Enlace with trends, patterns, upon which they can use to integrate with existing programs.

Figure 5:

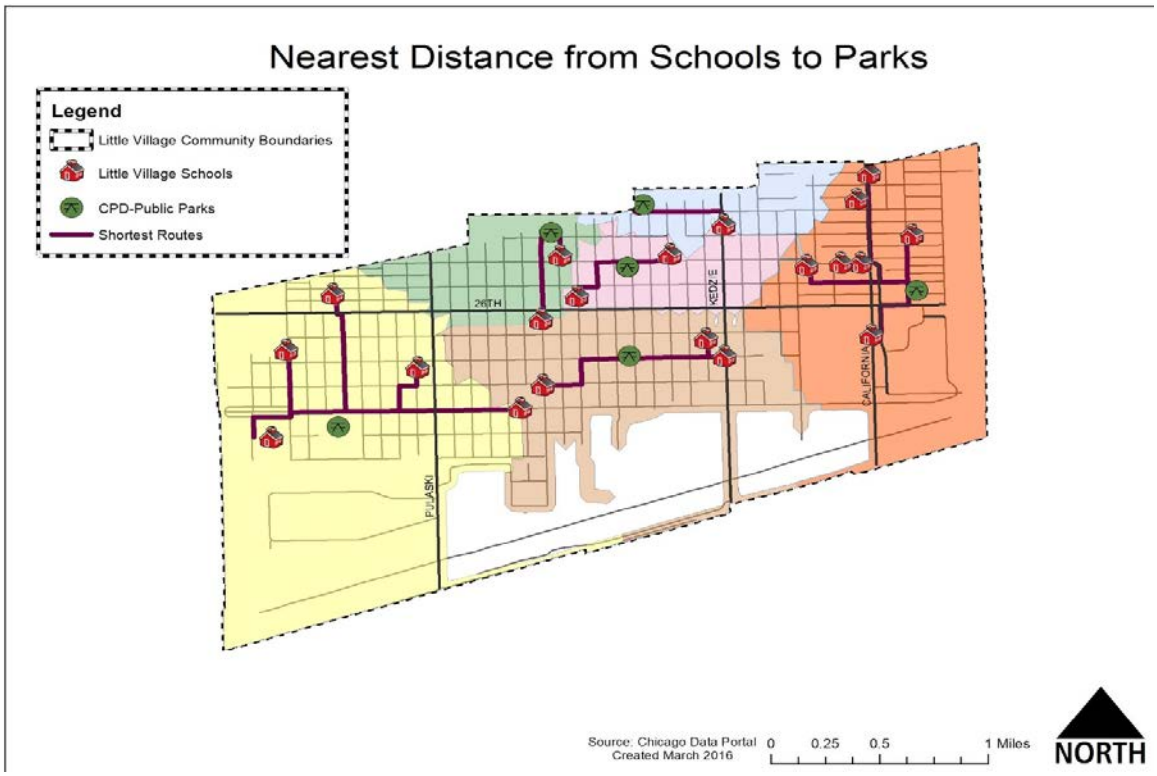


Figure 6:

CONCLUSIONS

In attempting to answer questions regarding both pedestrian safety and walkability assets, we have successfully mapped out areas in need of improved safety infrastructure and surveillance, as well as an overview of how parks can contribute to the goals of Enlace and the Safe Routes to School Coalition. Mapping potential hazards, we have identified hotspots of both crime and traffic accidents. These maps can be used to show areas for schoolchildren to avoid, as well as for Enlace to lobby for additional resources to address these concerns. Overall, we feel that questions we had posed have been answered sufficiently, but additional analyses could be undertaken in order to address further questions about safety and walkability in Little Village. Furthermore, asset-based and qualitative approaches could be used to better understand the current routes taken by students, and to find how certain enhancements (such as murals and skate parks) could come into play along these routes.

In terms of pedestrian safety, we found that West 26th Street is a particular area of concern. Being a main traffic thoroughfare, as well as a dense business district with street vendors lining the sidewalks, there are many potential hazards that can come into play with both people and cars being in such close proximity to one another. It is our opinion that Enlace could use the map produced above to show the area of concern and to argue for additional pedestrian safety infrastructure. Improvements can include traffic-calming measures, such as sidewalk bump-outs and narrower lanes, as well as traditional improvements such as four-way stop sign intersections and increased numbers of crossing signals. Taken as a combination, these strategies can promote walkability while also allowing traffic to flow through as it always has.

Network analysis showed us how parks could potentially be integrated into a safe walking routes plan by presenting “service areas” and shortest distances between schools and green space. Depending on the particular facilities within each park, these maps could be used to show schoolchildren common areas to meet and play that are nearby. Additionally, these maps could be overlaid on the aforementioned crime and crash-related maps in order to see whether these fastest routes to parks are adversely impacted by negative phenomena. In doing so, Enlace could have a stronger argument to take to government officials for pedestrian safety improvements.

Overall, our analyses showed aspects that can both promote walkability, as well as deter it. Further studies could be undertaken to show even more variables at play in the issue of pedestrian safety. We hope Enlace, and the Safe Routes to School Coaltion as a whole, continue to bring light to issues such as these, and we are pleased to have contributed our time to such a noble cause. Little Village is a very unique neighborhood in that there are a multitude of organizations and involved citizens that each play a role in making the community a healther and safer place to live. As it continues to grow and as the efforts of theze organizations continue to be successful, Little Village could serve as an inspiration to other communities throughout Chicago and the United States as a whole.