NEIGHBORHOOD
MOBILITY
MASTER PLAN

TWIN LAKES NORTH

Twin Lakes North

Neighborhood Mobility Master Plan

September 2016

Prepared for: Twin Lakes North
& The City of Fort Lauderdale
Transportation and Mobility Department

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CONTENTS

FIGURES

1 INTRODUCTION

PROJECT BACKGROUND

Twin Lakes North is a residential neighborhood located in Fort Lauderdale, Florida. It is comprised primarily of single-family homes. The neighborhood was incorporated into the City of Fort Lauderdale in 2005. Over time, community members have expressed concerns over the cut-through vehicle and truck traffic and speeds as well as a desire to preemptively calm traffic that may be introduced by future developments. In addition, neighbors have expressed the desire for a safer and more comfortable multimodal environment. In recognition of these desires, the City of Fort Lauderdale initiated the Twin Lakes North Neighborhood Mobility Master Plan.

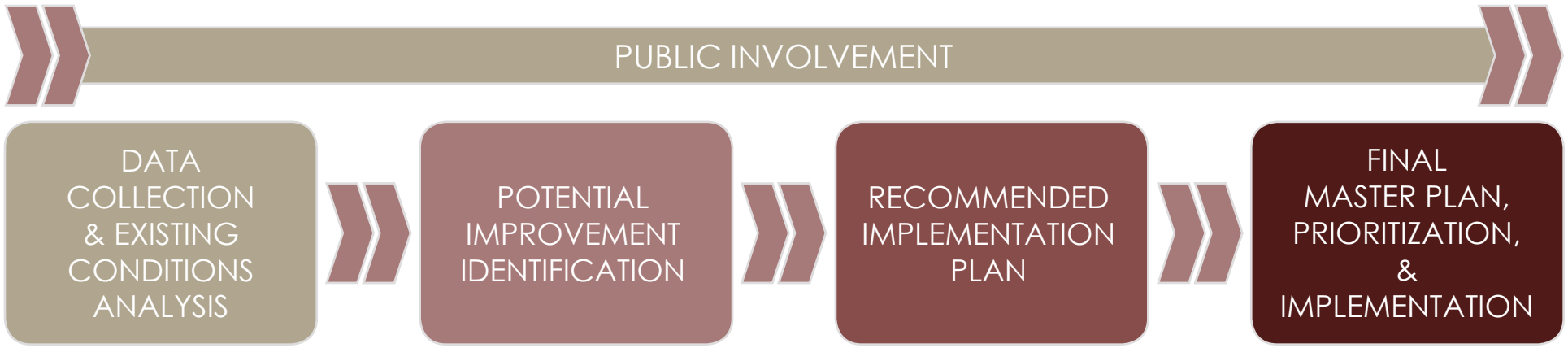
As guided by its Vision and Strategic Plan, the City is working to transform itself into a multimodal, active, and vibrant community. In order to support this growth and change, the City is working to complete a series of Neighborhood Mobility Master Plans that address neighborhood transportation issues in collaboration with the community.

STUDY PROCESS

The Twin Lakes North Neighborhood Mobility Master Plan examines the existing and future multimodal transportation system; the existing and future land uses; the demographics; the traffic circulation patterns; and the crash history to better understand the issues in and around the neighborhood. The Twin Lakes North Mobility Master Plan was conducted over a period of eight months, beginning in summer 2015 and ending in early 2016. The project team took a "blank slate" approach, with no assumptions on the issues or needs coming in. This allowed the community members, supported by data and analysis, to identify the issues and importance of those issues.

This process was completed in four phases, as seen in Figure 1. Beginning with data collection and analysis and stakeholder involvement, phase one identified the issues and opportunities in the neighborhood. In phase two, a general menu of potential improvements was identified and presented to the community. The community was then asked to choose the types of strategies they would like to see implemented in the neighborhood. In phase three, the improvement types decided on in phase two were applied to the specific issue and opportunity areas identified in phase one. Additionally, planning level cost estimates and project timing were developed for the improvements. These were presented to the community and the feedback received was used in phase four to create the final Master Plan. Phase four is ongoing, and includes a final prioritization developed between the community members and the City of Fort Lauderdale as well as the implementation of the projects as funds become available.

FIGURE 1
STUDY PROCESS



REPORT ORGANIZATION

This report is organized into six sections as follows:

1. INTRODUCTION

Describes the study purpose and background; the process; and the study area.

2. EXISTING & FUTURE CONDITIONS

A comprehensive overview of the existing and future conditions in and around the neighborhood, including analysis of the demographics; land use and proposed developments; existing traffic calming devices; multimodal transportation environment; and safety aspects.

3. COMMUNITY ENGAGEMENT

Describes the public involvement activities conducted throughout the study, including a high level overview of the results.

4. SYNTHESIS

Combines the results of the data analysis and the public involvement efforts to create an overall assessment of the needs, desires, and opportunities in the community.

5. MASTER PLAN

Delineates the recommended strategies to address the needs, desires, and opportunities uncovered throughout the project. Also discusses the planning level cost estimates for the recommendations in the study.

6. NEXT STEPS

Presents the next steps for the community, including a discussion of the prioritization of the recommendations based on the prioritization methods approved in the City's Connecting the Blocks plan. This is meant to be a starting point for future prioritization efforts by the City.

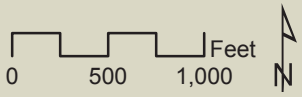
STUDY AREA

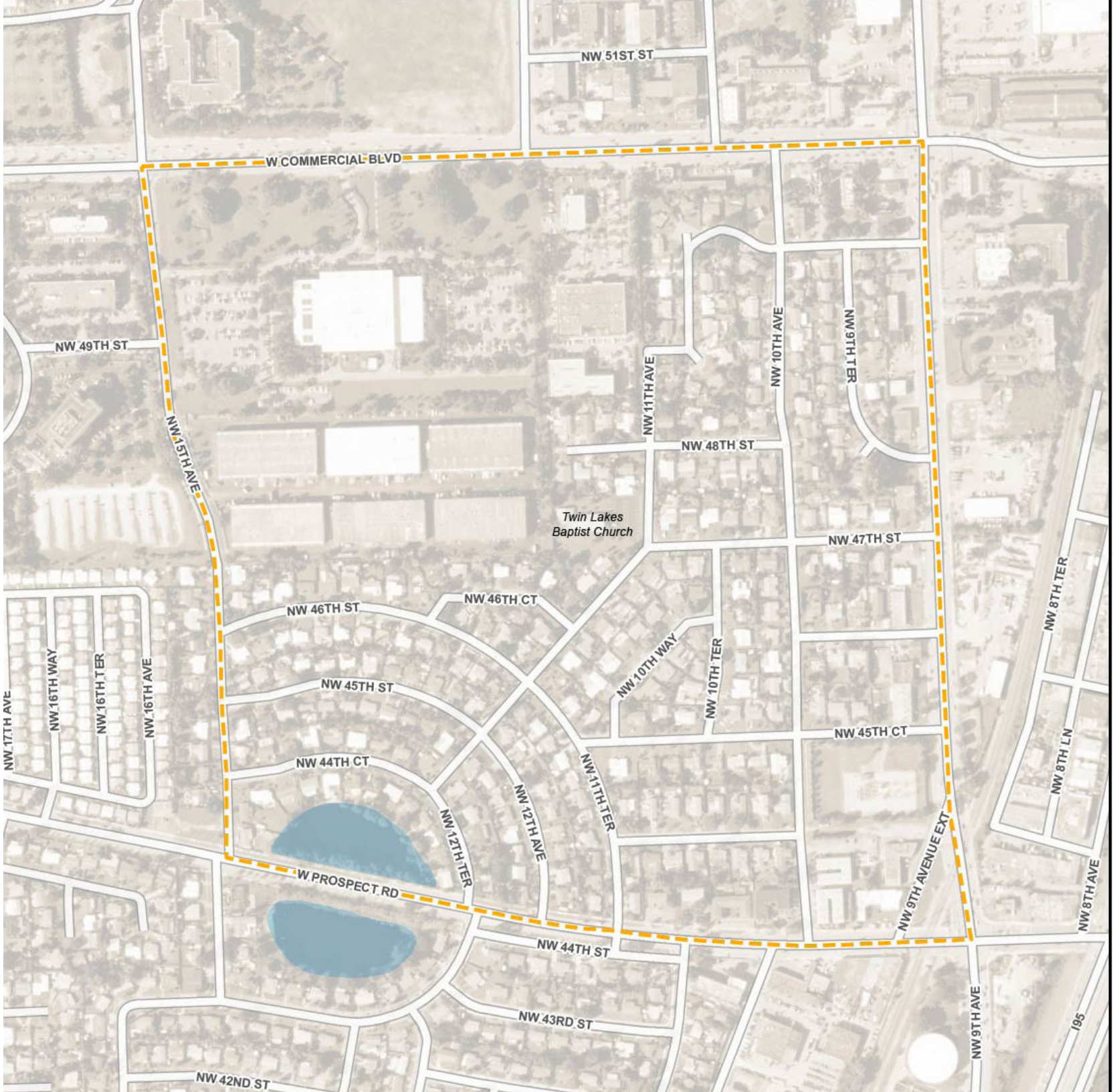
Twin Lakes North is located in the northwest area of Fort Lauderdale. Figure 2 displays the project study area. It is bounded by NW 15th Avenue to the west, Prospect Road to the south, Powerline Road to the east, and Commercial Boulevard to the north.

Typical Neighborhood Park.
Credit: Kittelson & Associates, Inc.

Twin Lakes Neighborhood Street.
Credit: Kittelson & Associates, Inc.

FIGURE 2
STUDY AREA

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2 EXISTING & FUTURE CONDITIONS

DEMOGRAPHICS

According to 2013 estimates from the U.S. Census Bureau, the Census Block Group containing Twin Lakes North is home to 1,360 people. Of those, 59 percent are men and 41 percent are women. Over one quarter of the population either are under the age of 18 or over the age of 65. These populations are less likely to drive, and therefore require adequate pedestrian and bicycle facilities to get around. Many people (88 percent) have access to at least one vehicle, and 68 percent have access to two or more vehicles. The median household income is around $40,890, which is less than the city as whole, where the median income is $58,000. Approximately 46 percent of the population has at least some college education.

According to the 2013 estimates from the U.S. Census Bureau, 44 percent of the population commutes less than 10 miles to work. According to the 2013 estimates, two percent of residents walk to work, and 10 percent of residents take transit to work. This is higher than the City's average of nine percent of people who take transit, walk, or bike to work. Commuters who get to work by walking and transit rely on adequate pedestrian and bicycle facilities to connect the neighborhood to nearby transit stops and destinations.

MEDIAN AGE IS **40**

18% UNDER 18

9% AGE 65+

POPULATION
1,360

59% MEN

41% WOMEN

ACCESS TO VEHICLE

0 VEHICLES **12%**

1 VEHICLE **20%**

2 VEHICLES **58%**

3+ VEHICLES **10%**

MODE SHARE
WORKERS AGE 16+

75.9% DRIVE ALONE

8.4% TELECOMMUTE

2.1% Walk

10.4% Transit

3.3% CARPOOL

0.0% OTHER

0.0% BIKE

COMMUTE DISTANCE

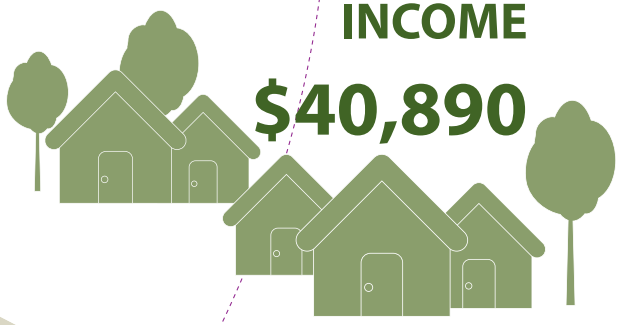
44.4%
LESS THAN 10 MILES

32.3%
10 TO 24 MILES

15.2%
25 TO 50 MILES

8.1%
GREATER THAN 50 MILES

MEDIAN HOUSEHOLD INCOME



$40,890

EDUCATION
AGE 25+

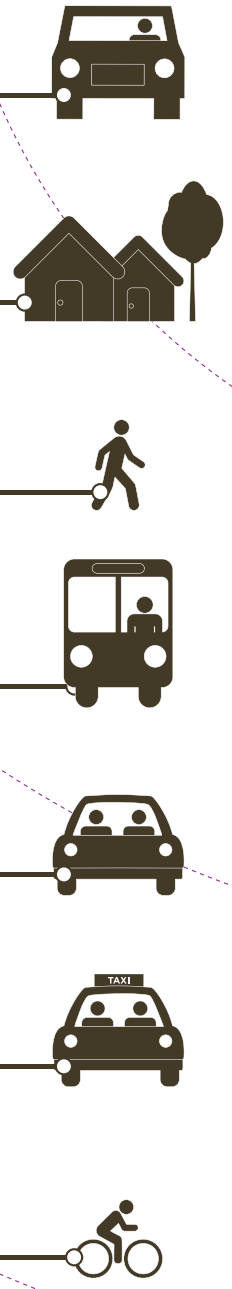
11%
LESS THAN HIGH SCHOOL

42%
HIGH SCHOOL

27%
SOME COLLEGE/ ASSOCIATES DEGREE

17%
BACHELORS DEGREE

2%
MASTERS DEGREE OR HIGHER



LAND USE AND DESTINATIONS

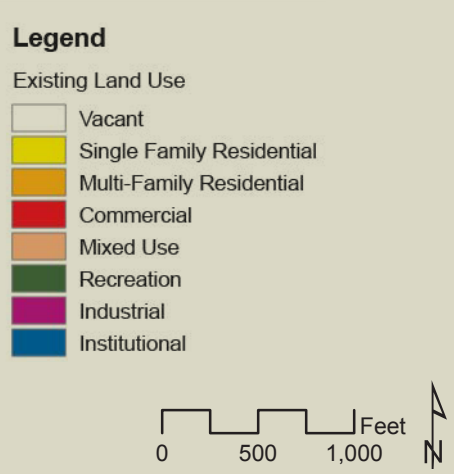
As shown in Figure 3, Twin Lakes North is almost completely comprised of single family homes within the neighborhood, with the exception of a church and neighborhood park. It is surrounded by commercial land uses on the north and east. A few multi-family homes are located south of the neighborhood. The northwest corner of the neighborhood is surrounded by industrial and institutional lands, including a college. The proximity to nearby commercial services and transit creates an environment conducive for walking or using alternative modes of transportation. However, good pedestrian and bicycling infrastructure is needed to support this land use. The moderate level of walkability is reflected by the Walk Score of 45[1].

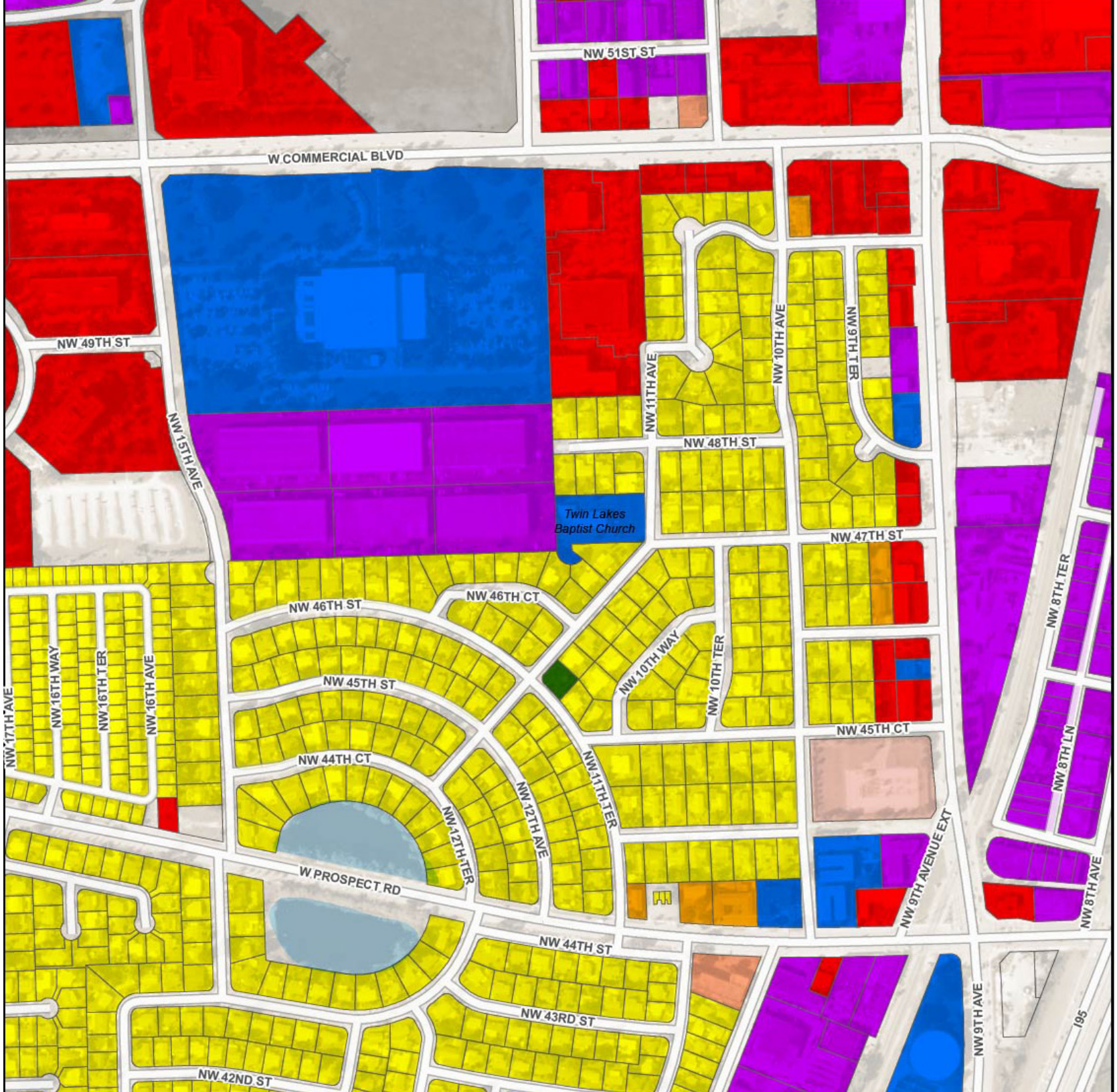
1 (Walk Score, 2015)

Typical Home in Twin Lakes North.
Credit: Kittelson & Associates.

Twin Lakes Baptist Church.
Credit: Kittelson & Associates.

FIGURE 3
EXISTING LAND USE

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STREET NETWORK

To support multimodal activity and development, the City of Fort Lauderdale has classified its streets according the types of users as well as the surrounding land uses and environmental factors in its Connecting the Blocks plan. As shown in Figure 4, there are two types of streets found in and around Twin Lakes North, which are described in further detail below. The roads located outside of the City that were not classified by the City, such as Prospect Road west of NW 15th Avenue and east of Powerline Road as well as Powerline Road, were classified for this report based on their characteristics and the classifications shown in Connecting the Blocks.

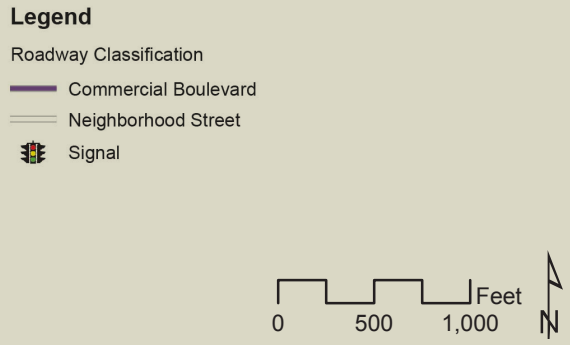
Commercial Boulevards

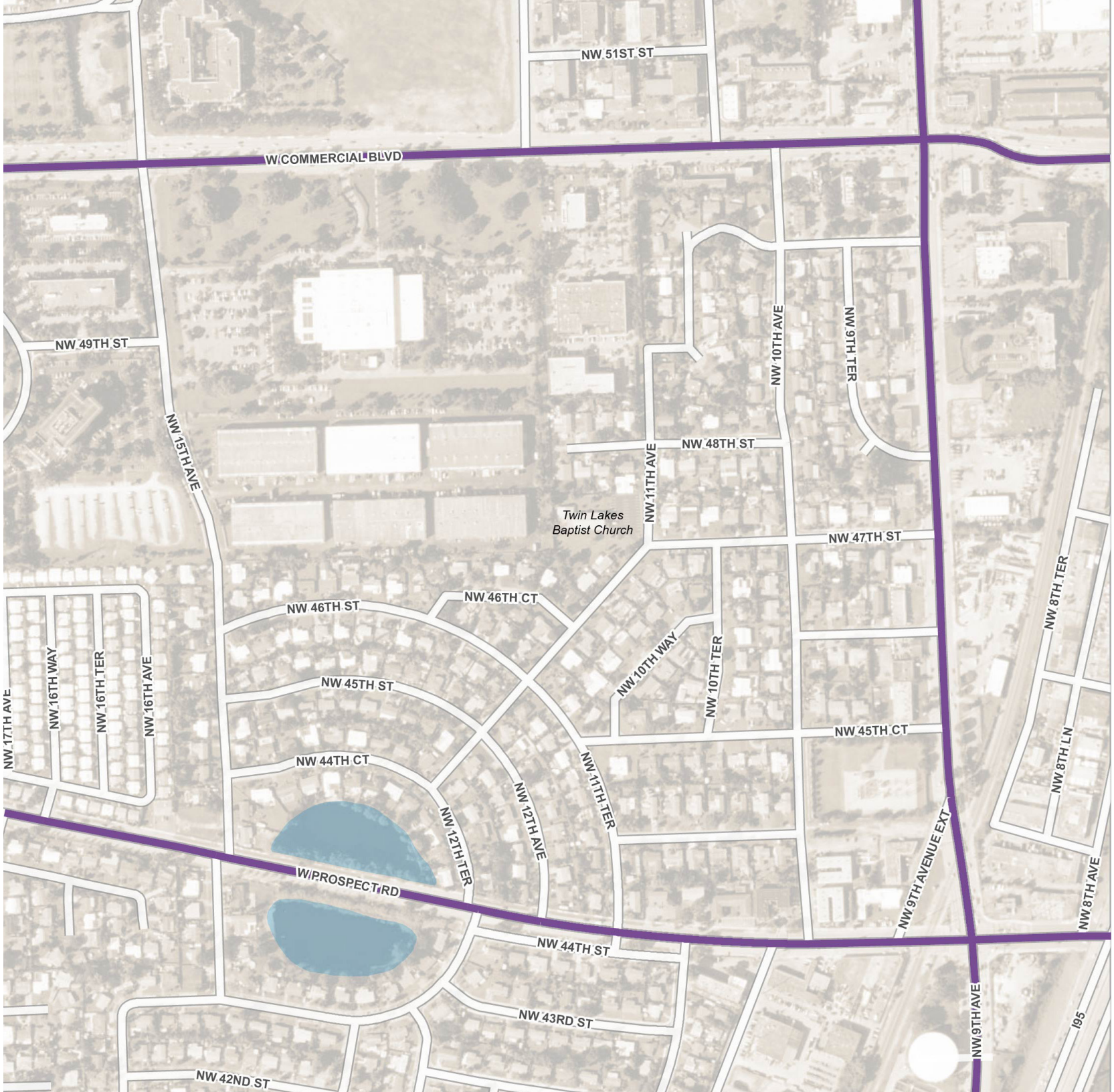
Serve primarily commercial or mixed uses and act as main thoroughfares that connect activity centers and support constant medium- to high-volumes of traffic at moderate speeds. They also serve as primary transit routes and routes for goods movement. In general, they should include dedicated bicycle facilities, pedestrian enhancements, and transit accommodations.

NEIGHBORHOOD STREETS

Can be commercial or residential in nature. They have low speeds and serve low traffic volumes. They are also considered essential for pedestrian and bicycle transportation. Depending on the speeds and volumes, vehicles may share the street with pedestrians and bicyclists or there may be designated pedestrian and bicycle facilities.

FIGURE 4
STREET NETWORK

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EXISTING PEDESTRIAN, BICYCLE, & TRANSIT FACILITIES

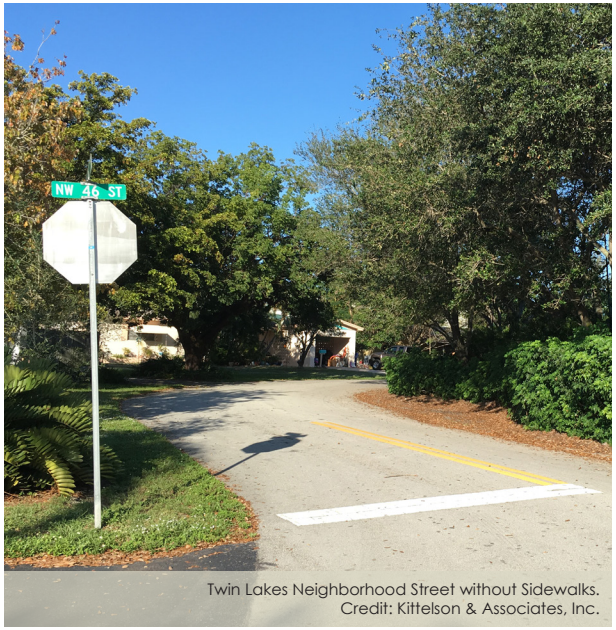
As can be seen in Figure 5, the pedestrian and bicycle network surrounding Twin Lakes North is generally complete while the network within the neighborhood is generally incomplete. Partial sidewalks exist on sections of NW 10th Avenue, NW 15th Avenue and several other local streets. Although sidewalks are present on the majority of external streets, crosswalks to connect the neighborhood with transit stops on these roads are limited, particularly on Powerline Road.

Commercial Boulevard is the only external street with marked bicycle facilities around the neighborhood. Internally, bicyclists are required to share the street with cars and pedestrians. Outside of the neighborhood, the high traffic volumes and speeds on the major roads create an unfriendly environment for bicyclists. Protected, marked facilities could help to create a more inviting environment for all riders.

Throughout the public involvement process, residents noted that they walked mostly for recreational purposes within the neighborhood. Combined with comments about traffic speeds, this suggests the need for sidewalks in some parts of the neighborhood where walking in the street may not be safe. Even so, many neighbors noted that they prefer to walk in the street, as it helps to add to the character and community feel of the neighborhood.

Neighbors also expressed concerns about pedestrian safety at night due to the lack of pedestrian-scale lighting in the neighborhood. This was particularly emphasized near the park. There are also opportunities to connect to regional recreational opportunities with potential new bicycle infrastructure.

There are transit stops surrounding Twin Lakes to the north and east sides of the neighborhood. While most of the stops are accessible via sidewalks, many do not have close access to crosswalks connecting to the neighborhood.



Twin Lakes Neighborhood Street without Sidewalks.
Credit: Kittelson & Associates, Inc.

Twin Lakes Neighborhood Street without Sidewalks.
Credit: Kittelson & Associates, Inc.

FIGURE 5

EXISTING BICYCLE AND PEDESTRIAN FACILITIES

Legend

Facilities

- Crosswalk
- Sidewalk
- Paved Shoulder (<4')
- Bus Stop
- Signal

0 500 1,000 Feet

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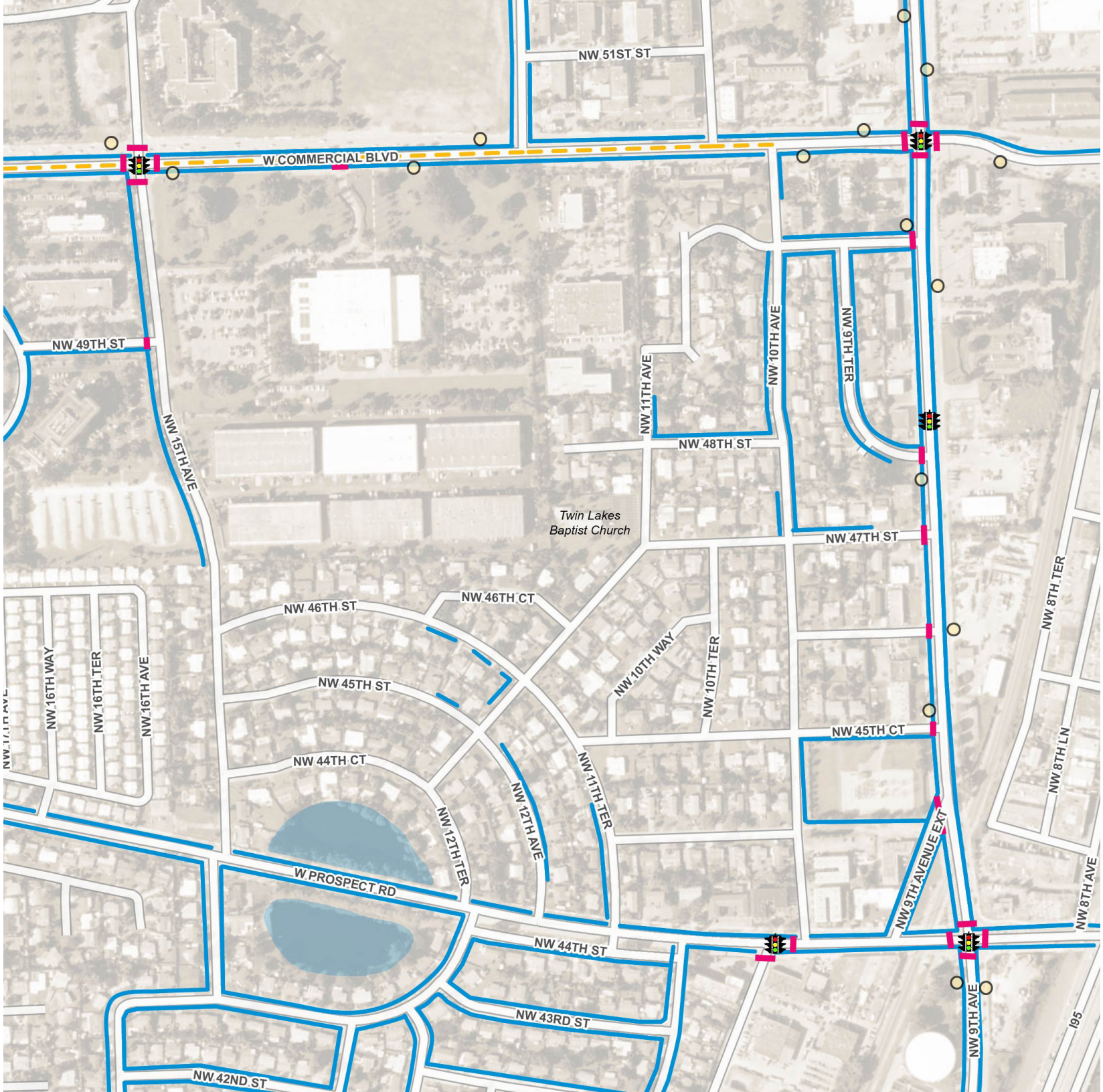
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VEHICULAR ACCESS AND INTERSECTION CONTROLS

Figure 6 shows vehicular access points to Twin Lakes North and intersection controls within the neighborhood. Regarding entrances and exits to the neighborhood, there are five access points along Prospect Road, five access points along Powerline Road, and two access points along Commercial Boulevard. Of these, the only signalized access point is located at Commercial Boulevard and NW 15th Avenue. Many of the access points are restricted to right-in, right-out movements only. Most of those that are full access have left-turn lanes from the major road into the neighborhood.

Figure 6 displays the location of stop-controlled intersections within the neighborhood. NW 15th Avenue, NW 10th Avenue, and Twin Lakes Boulevard generally function as through streets, with side streets generally yielding to traffic on those streets. Neighbors noted concerns of speeding and vehicles failing to yield at stop signs on these streets.

The intersection of Twin Lakes Boulevard and NW 47th Street is skewed with stop signs controlling two of the three legs. Neighbors expressed concern over the function of this unconventional intersection.

Unsignalized Neighborhood Access at Prospect Road and NW 15th Avenue
Credit: Google.

Unsignalized Neighborhood Access at Powerline Road and 46th Street.
Credit: Google.

FIGURE 6

VEHICULAR ACCESS AND INTERSECTION CONTROLS

Legend

Facilities

- Signal
- Access Restriction
- Intersection Control
  - Major Street
  - Stop

0 500 1,000 Feet

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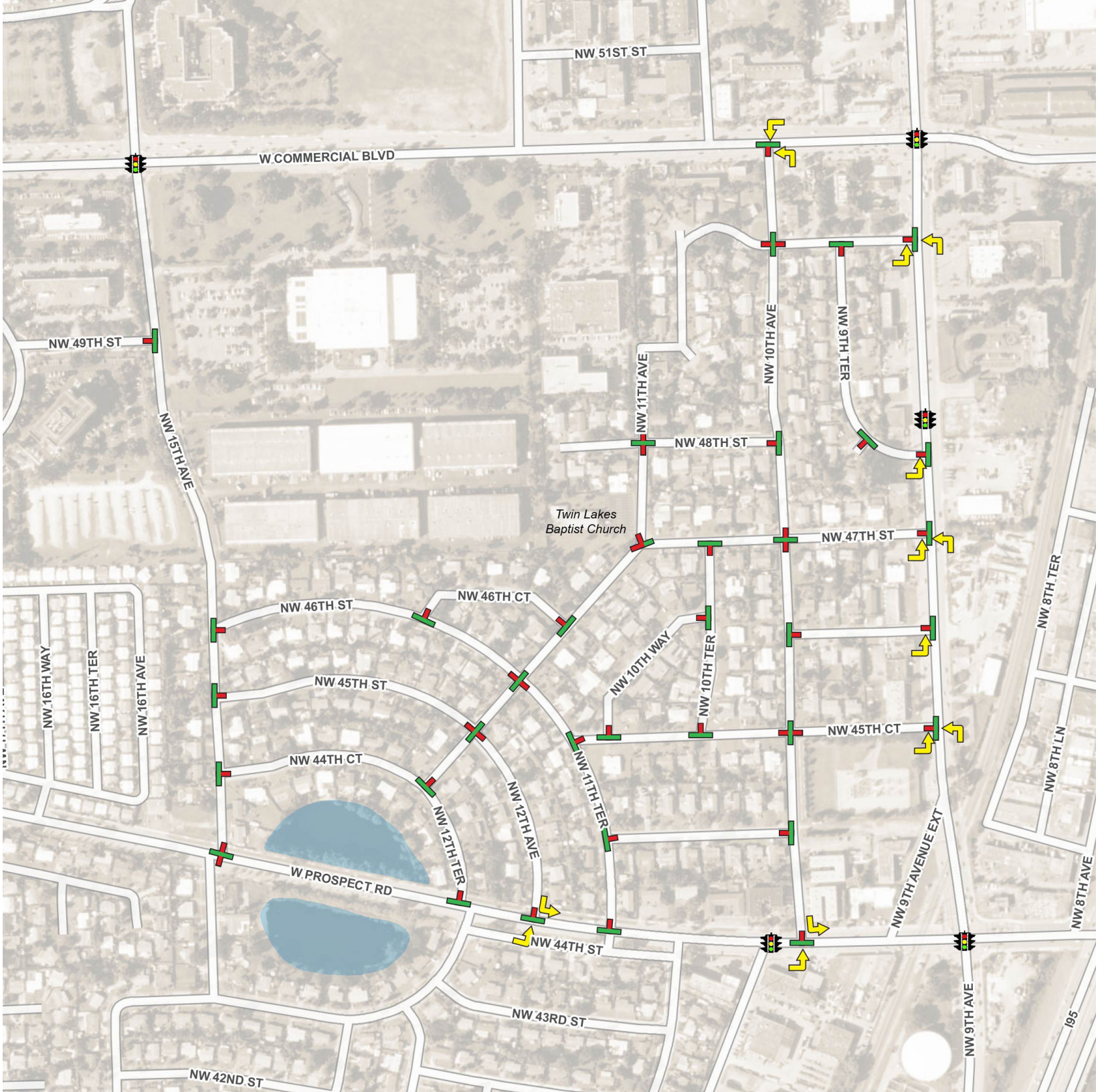
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VEHICULAR TRAFFIC CALMING MEASURES AND POSTED SPEED LIMITS

The area speed limit in Twin Lakes North is currently 25 mph and is posted at most entrances to the neighborhood. The southbound neighborhood entrance on 15th Avenue lacks an area speed limit sign. Generally, 20 MPH is a preferable speed limit for neighborhood streets where pedestrians, bicycles, and cars may share the road.[2]

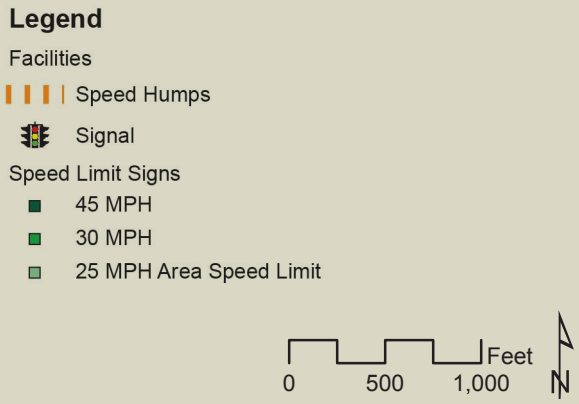
NW 10th Avenue and NW 15th Avenue currently have speed humps to serve as traffic calming measures within the neighborhood, as shown in Figure 7. However, input from public meetings indicated that neighbors did not think the speed humps were effective at slowing traffic or deterring cut-through traffic on these streets. Neighbors also noted that trucks and other large vehicles created excessively loud noise when going over speed humps.

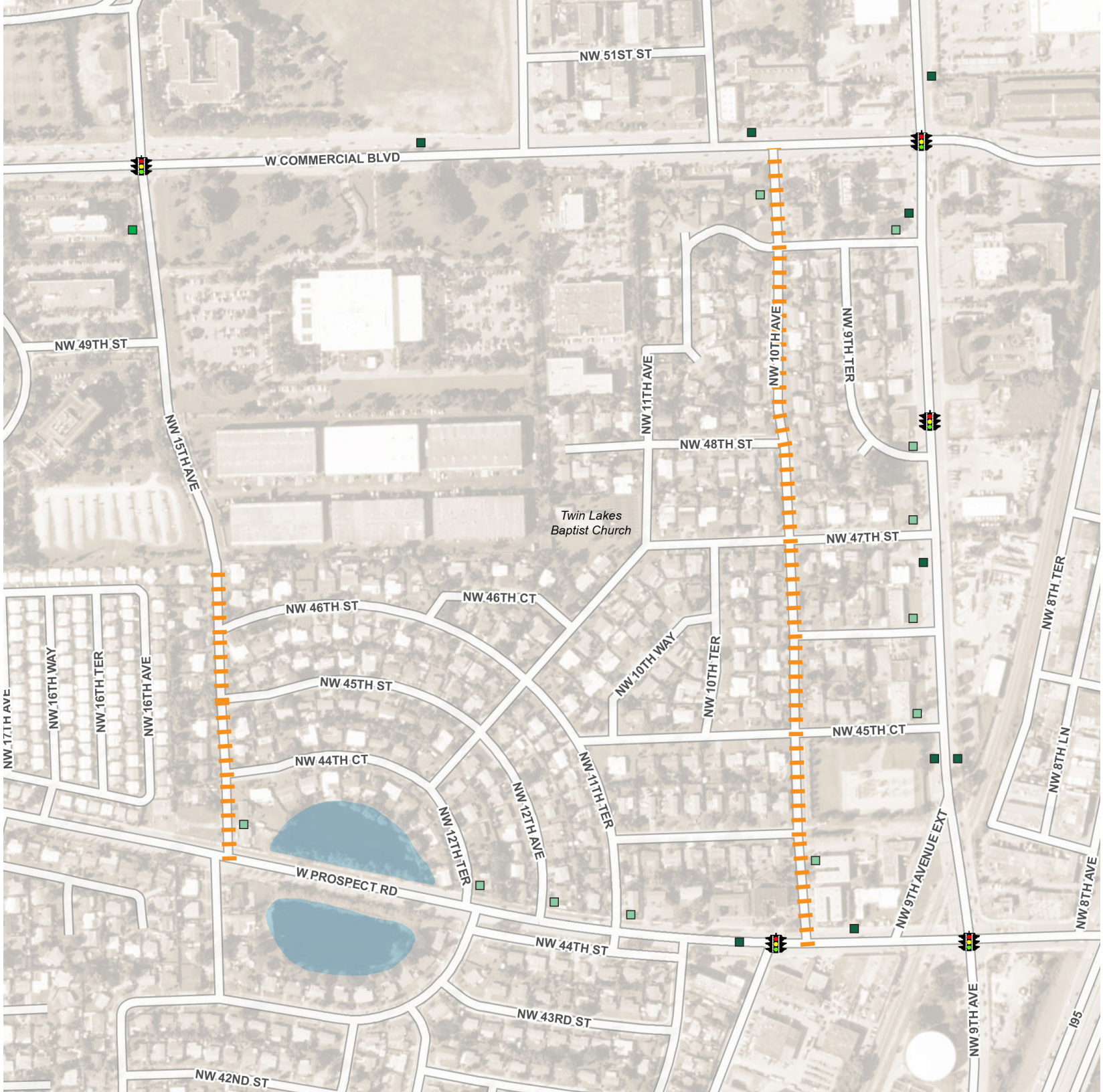
2 Kulash, W. (2001). Residential Streets, Third Edition. Washington, DC: Urban Land Institute.

Existing Speed Humps for Traffic Calming in Twin Lakes North. Credit: Kittelson & Associates, Inc.

FIGURE 7

TRAFFIC CALMING MEASURES

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VEHICULAR TRAFFIC VOLUMES

As part of this study, traffic information was collected. This includes vehicular and pedestrian counts; vehicular speeds; and turning movement counts at select locations. A map of the locations as well as the count data can be found in Appendix A.

Figure 8 shows the traffic volumes at the locations where data was collected. When considering the average daily traffic, the data shows that NW 15th Avenue experiences the highest traffic volume within the neighborhood, followed by the north end of NW 10th Avenue. This data aligns with public comments indicating these two streets experience the highest cut-through traffic. The data also reflects that NW 15th Avenue and NW 10th Avenue are the only two neighborhood roads that provide a connection to Commercial Boulevard.

In general, local streets (Neighborhood Streets) should serve 1,500 vehicles per day or less.[3] NW 15th Avenue currently carries more than this threshold, indicating that it may serve as more of a collector than a local street.

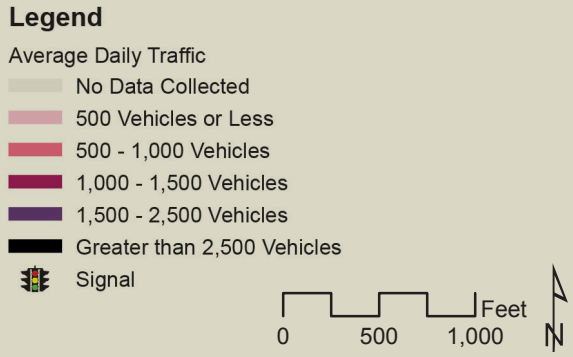
3 Kulash, W. (2001). Residential Streets, Third Edition. Washington, DC: Urban Land Institute.

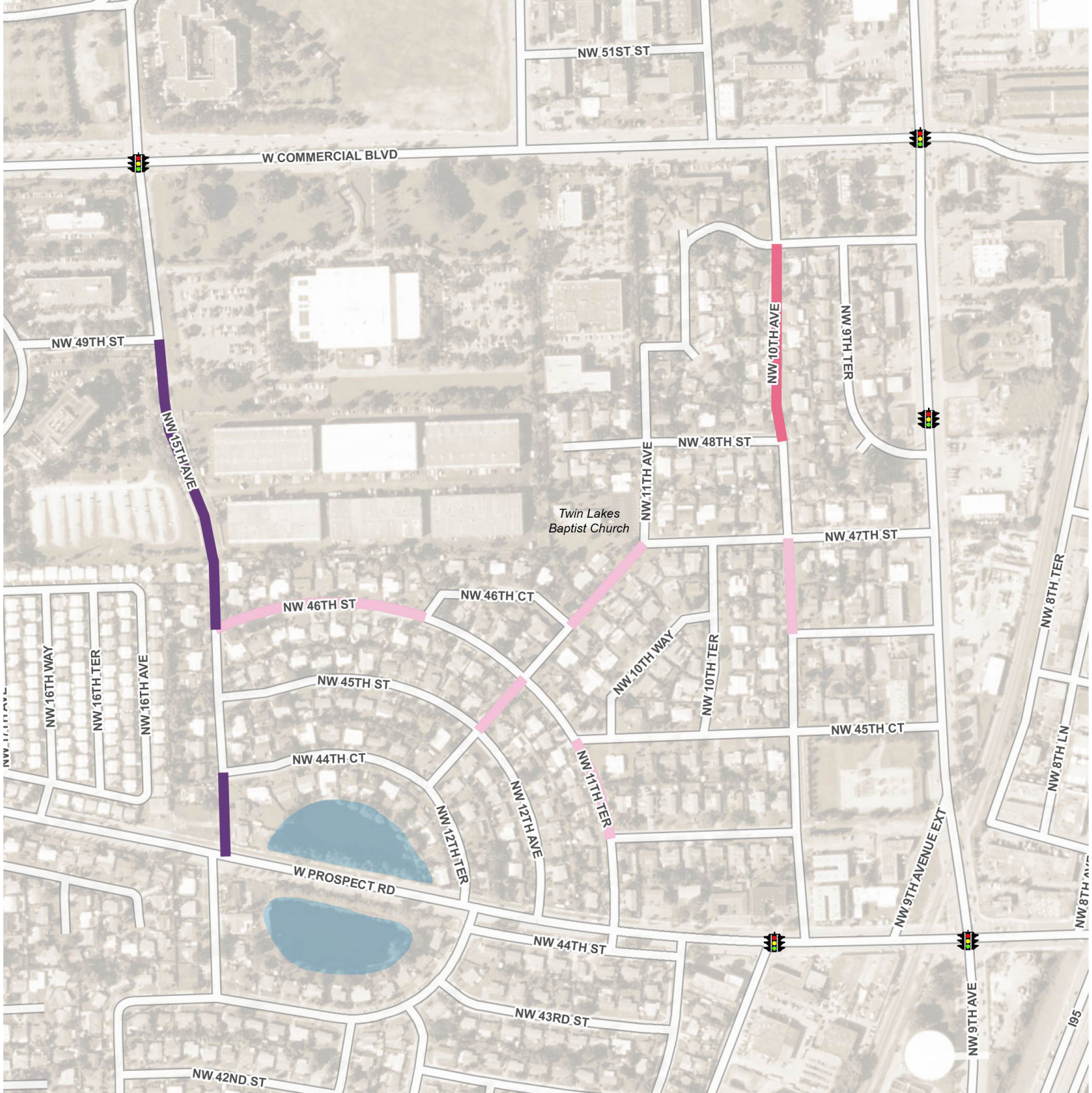
Typical Neighborhood Street.
Credit: Kittelson & Associates, Inc.

Typical Neighborhood Street.
Credit: Kittelson & Associates, Inc.

FIGURE 8

TRAFFIC VOLUMES

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VEHICULAR TRAFFIC SPEEDS

Speed data was collected at several locations throughout the community, and is presented in Figure 9. In general, people exceeded the speed limit on the north end of NW 15th Avenue, where the neighborhood transitions to industrial and institutional uses. Because NW 15th Avenue is also a street that people are likely to walk and bike on to connect to the industrial and institutional land uses on the north end, there is potential for vehicular and pedestrian conflict.

Additionally, it was noted that drivers are exceeding the speed limit on NW 11th Terrace, close to the neighborhood park. Traffic calming measures may help to lower speeds in this location to create a safe and comfortable environment for people walking and biking to the park.

Area Speed Limit Sign at a Neighborhood Entrance.
Credit: Kittelson & Associates, Inc.

Typical Neighborhood Street.
Credit: Kittelson & Associates, Inc.

FIGURE 9

TRAFFIC SPEEDS*

Legend

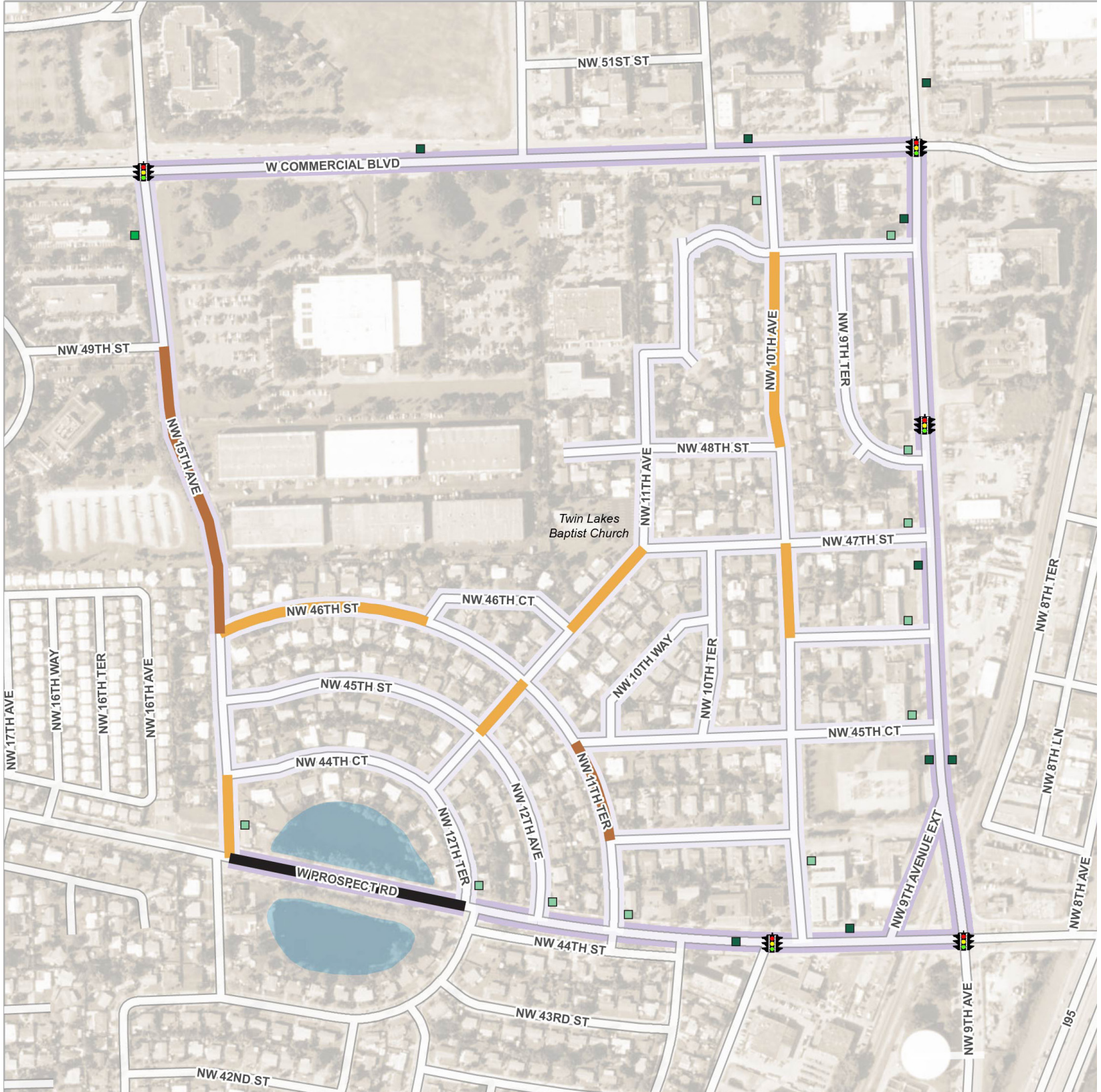
Prevailing Speed
- No Data Collected
- 20 MPH or Less
- 21 - 25 MPH
- 26 - 30 MPH
- 30 - 35 MPH
- Greater than 35 MPH

Posted Speed Limit Signs
- 45 MPH
- 30 MPH
- 25 MPH Area Speed Limit
- Signal

*Speeds are shown in the proximity to the collection locations only. The map does not represent neighborhood-wide speeds. It does not preclude the other areas of the neighborhood not studied from having speeding issues.

0 500 1,000 Feet

N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INTERSECTION OPERATIONS

Counts were done at thirteen intersections throughout the neighborhood for use in analyzing intersection operations. The analysis was undertaken to help identify where vehicular congestion occurs and whether additional improvements are needed to mitigate any congestion or concerns. The majority of the intersections analyzed were internal intersections of local streets within the neighborhood. Three intersections along Prospect Road were also analyzed.

The intersections were analyzed using Highway Capacity Software (HCS). Figure 10 summarizes the results of the intersection operations assessment. The analysis is based on the volume to capacity (v/c) ratio, which represents vehicular demand on the intersection in relation to its physical capacity and average delay.

The analysis of internal intersections of local streets showed that all of the intersections operated acceptably with low volume-to-capacity ratios and low delay.

The three intersections on Prospect Road experienced higher levels of delay than the internal intersections. The highest level of delay occurs at the intersection of Prospect Road/NW 15th Avenue. Some neighbors also expressed desire for a traffic signal at this intersection. A traffic signal may also improve the ability for pedestrians to cross Prospect Road. Based on traffic counts and safety data, the intersection does not meet traffic signal warrants. In addition, installing a traffic signal at this location is likely to increase traffic on NW 15th Avenue, which neighbors have identified as undesirable.

FIGURE 10

INTERSECTION OPERATIONS

Intersection	Control Type	Approach	AM Peak Hour			PM Peak Hour		
			LOS*	v/c ratio	Delay (sec)	LOS*	v/c ratio	Delay (sec)
Prospect Road & NW 11th Terrace	Two-Way Stop-Controlled	NB	C	0.05	23.7	C	0.07	19.8
		SB	B	0.03	12.7	D	0.04	28.8
		EB	A	0.01	9.1	B	0.04	13.9
		WB	B	0.02	11.7	A	0.05	9.5
Prospect Road & NW 11th Terrace	Two-Way Stop-Controlled	NB	C	0.13	17	C	0.12	15.1
		SB	B	0.01	11.9	D	0.05	30
		EB	A	0.00	9.2	B	0.01	13.2
		WB	B	0.02	11.7	B	0.07	10.1
Prospect Road & NW 15th Avenue	Two-Way Stop-Controlled	NB	C	0.09	24.9	C	0.05	19.4
		SB	B	0.07	14.5	D	0.52	35
		EB	A	0.13	9.8	B	0.05	13.1
		WB	B	0.00	11.5	A	0.01	9.2

PEDESTRIAN AND BICYCLE EXPERIENCE

The majority of streets within Twin Lakes North lack sidewalks and bicycle infrastructure. As such, pedestrians and bicyclists currently share the travel way with automobiles. This situation may not pose concerns for certain streets, and neighbors have noted that they prefer walking and bicycling in the street through most of the neighborhood. However, it creates safety conflicts when there is fast-moving traffic or high traffic volumes.

To assess the quality of the existing pedestrian and bicycle environment, traffic volumes and speeds were analyzed within the neighborhood. The analysis was also intended to assist in prioritizing needed improvements within the neighborhood. Figure 11 shows the results of this evaluation. Neighborhood streets with low volumes (fewer than 500 vehicles per day) and low speeds (less than 20 miles per hour) were considered to have a more favorable environment for pedestrians and bicyclists sharing the travel way with automobiles. Streets with higher traffic volumes and faster vehicle speeds were considered to have a less favorable environment.

Separate pedestrian and bicycle facilities were also considered. The presence of sidewalks is sufficient to elevate the pedestrian environment to "Good" on local streets. Regarding bicycle facilities, national and international guidance suggests that bicyclists can reasonably share the street with vehicles on two lane streets with speed limits under 25 MPH and volumes under 5,000 vehicles per day.[4] After that, separate, marked facilities should be incorporated.

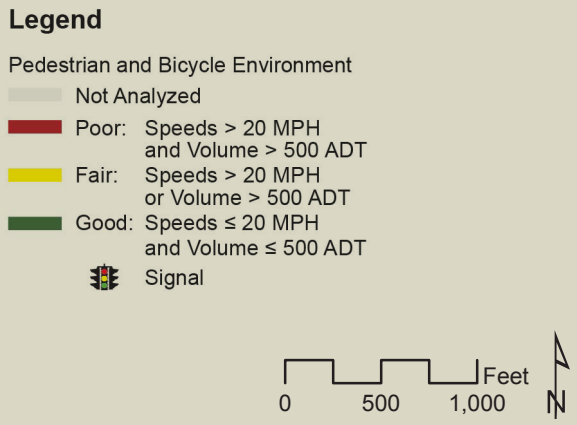
None of the neighborhood streets analyzed were considered to have a "good" pedestrian and bicycle environment due to speeds over 20 MPH and higher volumes. However, many of the streets were considered "fair." The "fair" streets can continue to support neighbors that wish to walk in the street, although sidewalks could help to create an even more comfortable walking environment if neighbors desire them in the future.

Neighborhood streets with the poorest environment for pedestrians and bicyclists using the street include NW 10th Avenue and NW 15th Avenue. Sidewalks and/or bicycle lanes may help to improve the walking and bicycling environment by providing physical separation between vehicles, pedestrians, and bicyclists on streets with higher speeds and volumes.

Existing Sidewalks within the Neighborhood. Credit: Kittelson & Associates.

FIGURE 11

PEDESTRIAN AND BICYCLE ENVIRONMENT



4 National Association of City Transportation Officials (NACTO). Urban Bikeway Design Guide. Washington, DC. 2011.

CROW. CROW Design Manual for Bicycle Traffic. The Netherlands. 2007.

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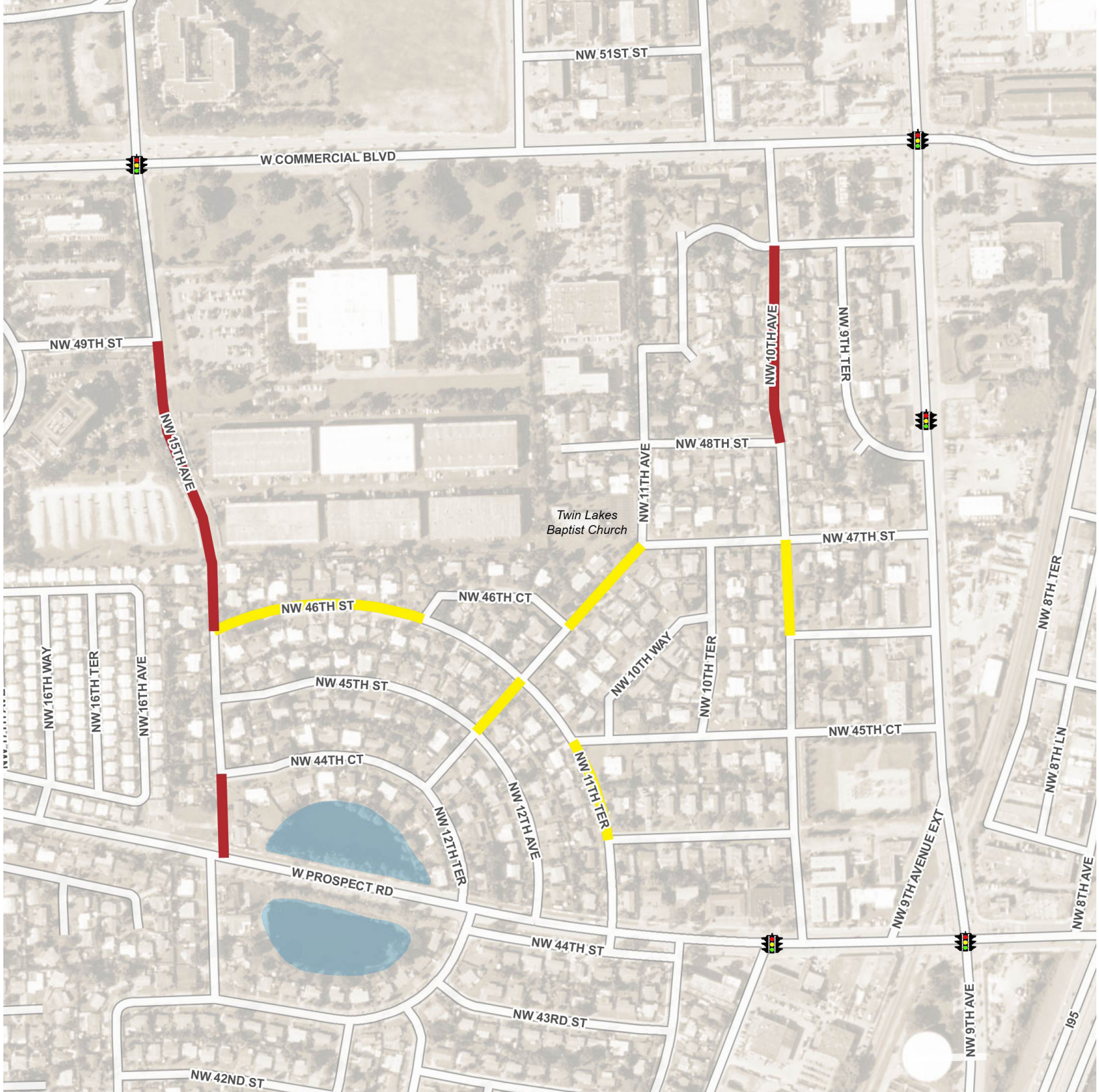
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CRASHES

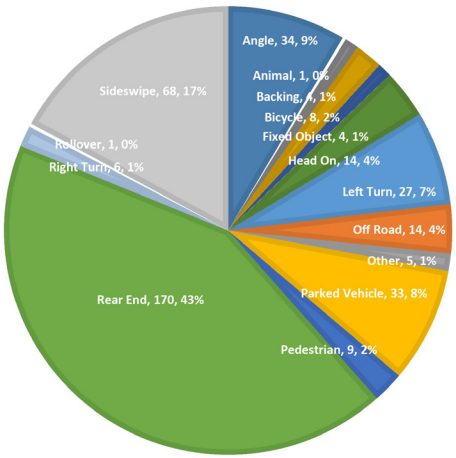
Crash data was reviewed for the five year period between January 2010 and December 2014 using data collected from Signal Four Analytics. Figures 12 - 14 display the crash data. There were a total of 424 crashes in the study area, with 379 occurring at intersections and 45 occurring along segments outside of the intersection influence areas. The data shows that the majority of the crashes in the area happened along the major roads outside of the community. Therefore, the crashes within and outside of the neighborhood were considered separately.

EXTERNAL ROADWAYS

There were a total of 398 crashes on the roads surrounding the neighborhood. The majority of these occurred at an intersection. The intersection with the highest numbers of crashes was located at Commercial Boulevard and Powerline Road. The most common crash type was rear end crashes, making up 156 of the 398 crashes. There were also eight pedestrian crashes and six bicycle crashes, with the majority involving pedestrians or bicyclists struck in a crosswalk. Pedestrian and bicycle crashes on high speed facilities are a point of concern because they often result in serious injuries. There were 2 fatal crashes, both of which involved a pedestrian and occurred during dark light conditions. They occurred at the intersections of Commercial Boulevard at Powerline Road and Prospect Road at Powerline Road. There were 117 crashes that resulted in an injury.

FIGURE 12

EXTERNAL CRASHES



INTERNAL NEIGHBORHOOD ROADWAYS

There were a total of 26 crashes on the streets within the neighborhood. Twenty-one of these crashes occurred at intersections and five occurred on segments. The majority (15 crashes) were reported at the intersection of NW 15th Avenue at Keiser University Driveway. However, the crash description indicates many occurred within internal parking lots. Four occurred at the intersection of NW 10th Avenue at NW 47th Street. The most common crash type was other, making up 13 of the 26 internal crashes. These crashes generally involved vehicles hitting parked cars or vehicles backing out of or turning into driveways. Intoxication was suspected in two of the crashes. There were no fatalities, and 3 injuries. There were no pedestrian or bicycle crashes.

FIGURE 13

INTERNAL NEIGHBORHOOD CRASHES

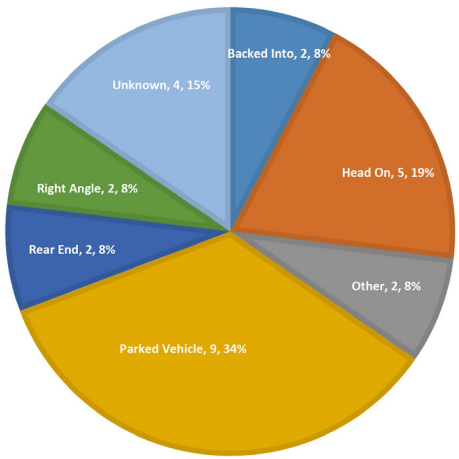
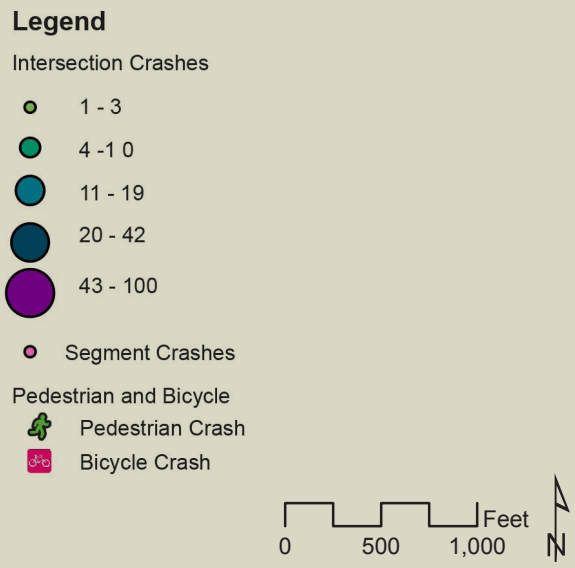
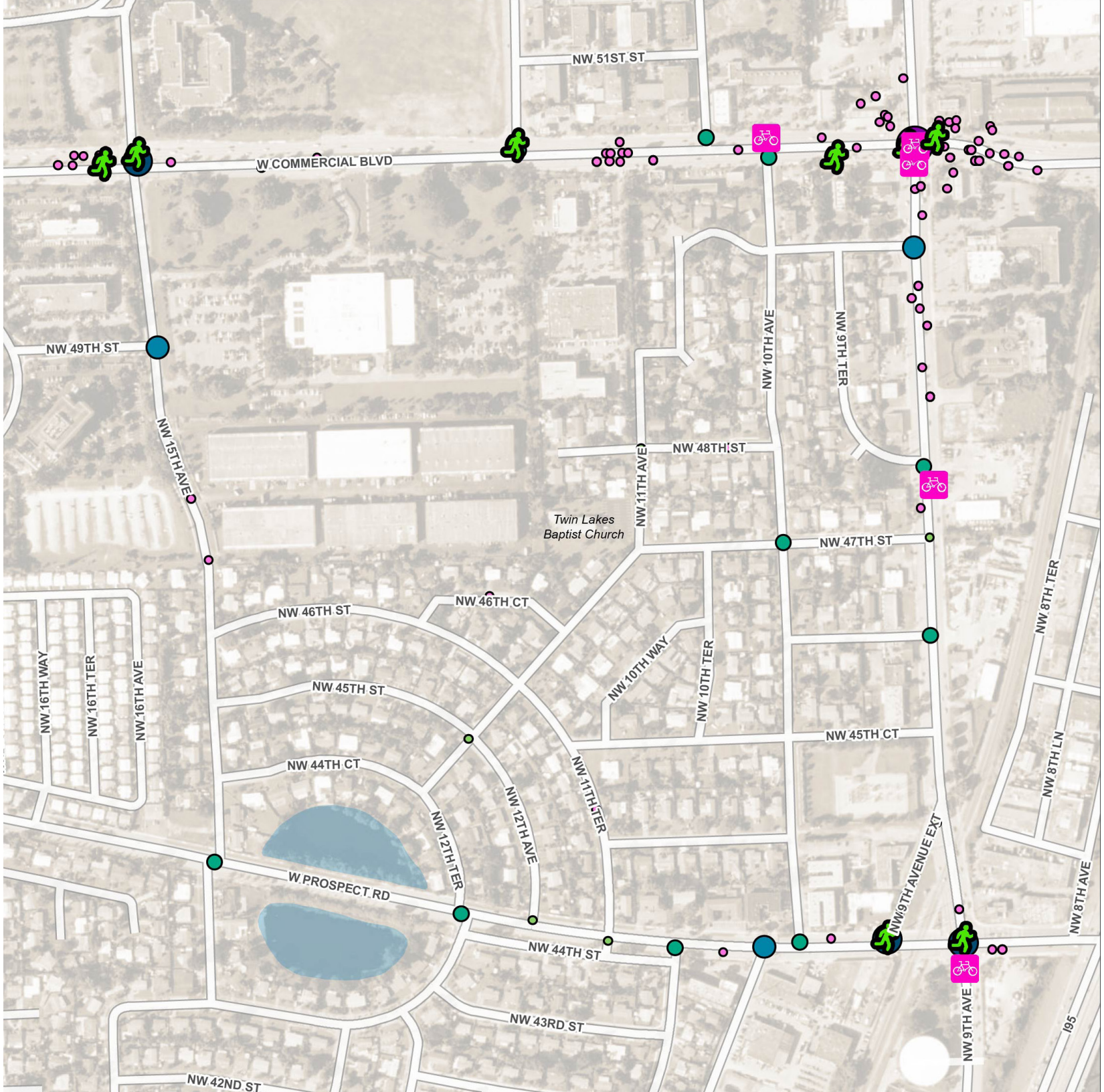


FIGURE 14

CRASH MAP

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3 COMMUNITY ENGAGEMENT

COMMUNITY ENGAGEMENT

While created and supported by strong technical analysis, this plan is intended primarily to represent the needs and desires of the neighbors. In order to do this, a series of three public workshops were held at the Twin Lakes Baptist Church. The first was held on April 18, 2015; the second was held on August 20, 2015 at 7:30 PM; and the third was held on November 19, 2015 at 7:00 PM.

For more information, including a list of attendees from the meetings and a full summary of the issues, comments, and responses, please see the Public Involvement Summary, available from the City of Fort Lauderdale.

WORKSHOP I

The first workshop provided community members with an introduction to the project and allowed for initial comment on the issues and opportunities in the neighborhood. City staff led this workshop. Community members were asked to provide their issues and concerns. Community members also provided some information about treatments they were interested in seeing throughout the neighborhood. This feedback was used as the basis for the recommendations and framework of the plan. The main issues identified from comments at this first meeting were the need to discourage cut-through traffic through the neighborhood, the need to slow traffic within the neighborhood, safety concerns at several locations, and better pedestrian and bicycle connectivity.

WORKSHOP II

At the second workshop, the results of the existing conditions analysis were presented along with a synthesis map of the issues and opportunities and a menu of potential solutions. To help the community members evaluate the potential solutions, high level measures of effectiveness for traffic calming and the pedestrian and bicycle environment were presented. Residents were able to comment on the issues and opportunities identified, as well as point out where issues were missed. They also selected their favorite strategies and discussed the ones they did not want to see in their neighborhood. Comments from this meeting were used to help select the draft recommendations for the Master Plan. The most liked strategies included street closures, raised intersections, electronic speed signs, mini median islands, mini roundabouts, pedestrian scale lighting, traffic signal modifications, and signage. Residents expressed desire for street closures. City staff recognized this suggestion and explained that additional strategies for traffic calming would be presented for consideration, as well.

WORKSHOP III

The third meeting tied the project together for the community. The draft Master Plan, which was created utilizing a combination of the information, values, and opinions gathered from the previous meetings and the other data and analysis, was presented for comment. Additionally, high level cost estimates were provided for the strategies and the plan as a whole.

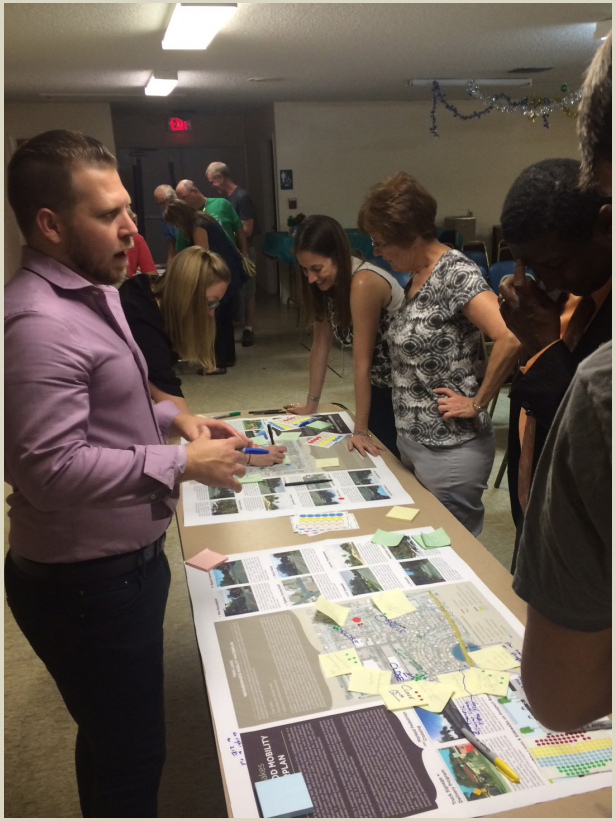
Residents had conflicting opinions about the recommendations. Although they were pleased with some of the recommendations for traffic calming, many reinforced their desire for street closure(s) to address cut-through traffic. However, the preference on locations for street closure varied among residents, with some preferring street closures on the north side of the neighborhood on NW 15th Avenue and others preferring the street closure on the south end of NW 15th Avenue or on a different street altogether. In addition, some residents were supportive of roundabouts while others preferred stop controlled intersections. In general, residents thought the recommendations addressed the key issue locations throughout the neighborhood.

Due to the desire for more restrictive treatments, the Plan provides information about the phased approach that may be used to start with treatments to deter cut-through traffic prior to implementing street closures. A phased approach is recommended to determine if traffic treatments can be used to deter cut-through traffic without closures. As part of this phased approach, an analysis will be needed that will consider the full impacts of closures on the entire neighborhood.

Although a phased approach is recommended, the neighbors have the option to move forward with requesting a street closure by following existing street closure processes stipulated in City code.

FUTURE MEETINGS

A future meeting to further prioritize the strategies and to discuss the phased approach will be held for the community by City staff. At this meeting, residents will have the opportunity to prioritize strategies and help influence those that are implemented first with the current funding available. This Plan is intended to be the community's plan, as they have the largest stake in it. The City and other agencies will continue to work with Twin Lakes North to implement strategies as additional future funding becomes available.



4 SYNTHESIS

SYNTHESIS

A transportation and land use synthesis was developed that considers the existing conditions holistically. This synthesis points to several conclusions regarding the study area:

The street network within the neighborhood must meet the needs of drivers but also prioritize recreational and commute pedestrian trips. These trips regularly occur along the same roads with higher speeds and traffic volumes, which suggests increased need for pedestrian facilities and enhancements such as lighting.

There is a need for additional traffic calming along major and neighborhood roads, as they currently exhibit speeds that exceed the desired maximum for the area. This is especially true when considering the pedestrian and bicycle trips along those roads and the higher volumes of traffic using some of these streets, including NW 15th Avenue, NW 10th Avenue, Twin Lakes Boulevard, and NW 11th Terrace.

Traffic calming measures are also needed to help discourage cut-through traffic. Vehicles and trucks use the neighborhood streets, particularly NW 10th Avenue and NW 15th Avenue, to reach the commercial, institutional, and industrial areas on the north end of the neighborhood.

Key intersections and streets for pedestrian, bicycle, and vehicular connectivity are apparent in several locations where major roads meet, including many of the external intersections as well as the intersections along NW 10th Avenue and Twin Lakes Boulevard. These intersections and streets should support all modes, including providing safe crossings for bicyclists and pedestrians.

The intersection of NW 10th Avenue and NW 47th Street has experienced a higher number of crashes than others in the neighborhood. Although these crashes have not been severe, intersection enhancements could help to improve safety.

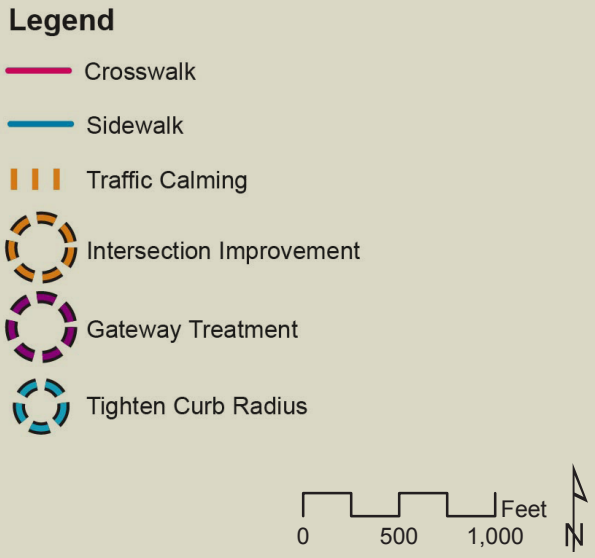
STUDY GOALS

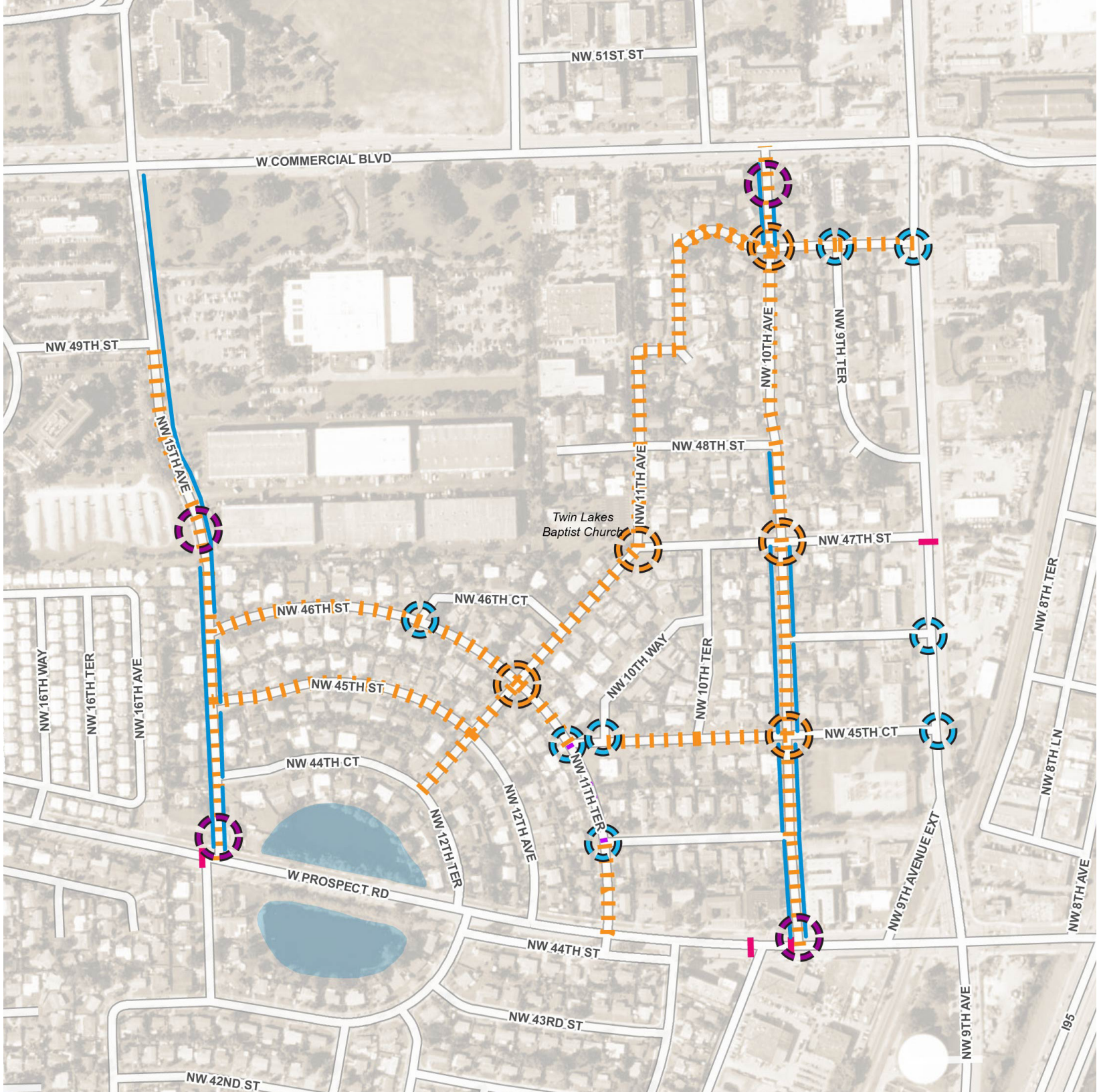
In general, the synthesis points to the following goals:

1. Calm Traffic
2. Discourage Cut-Through Traffic
3. Enhance the Pedestrian and Bicycle Environment

Figure 15 presents the issues and opportunities uncovered from the synthesis. The issues identified generally focus on areas where traffic calming, multimodal connectivity, access, comfort, and safety improvements can be made to achieve the three aforementioned goals. This map does not represent solutions; rather, it was a starting point for discussion with community members about the issues and opportunities in Twin Lakes North. Therefore, the Master Plan (i.e. solutions) map reflects different information.

FIGURE 15
IMPROVEMENT NEEDS

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5 MASTER PLAN

MASTER PLAN

Based on the analysis and community input collected throughout the project, a number of context sensitive strategies were developed to calm traffic, discourage cut-through traffic, and enhance the pedestrian and bicycling environment in the neighborhood. Together, these strategies will enhance the accessibility, comfort, and overall livability within and around Twin Lakes North Neighborhood.

The overall Master Plan is split into two parts: the Neighborhood Streets Master Plan and the External Streets Master Plan. The Neighborhood Streets Master Plan generally focuses on internal streets located within the Twin Lakes North neighborhood. The External Streets Master Plan considers the three roadways that bound the neighborhood: Prospect Road, Powerline Road, and Commercial Boulevard.

NEIGHBORHOOD STREETS MASTER PLAN

The Neighborhood Streets Master Plan focuses on streets internal to Twin Lakes North. These streets generally function as internal connections for residents.

In order to achieve the neighborhood's goals, the Neighborhood Streets Master Plan recommends intersection, mid-block, and street focused traffic calming strategies as well as enhancements to the pedestrian and bicycling network. Figure 16 presents a comprehensive summary of the recommendations. The images and descriptions on the following pages provide various details and examples for each strategy.

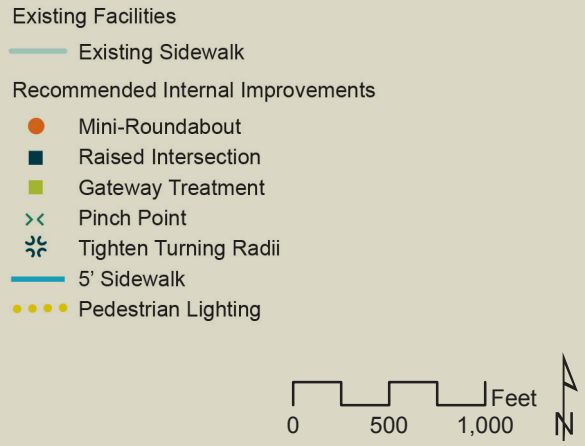
A NOTE ON IMPLEMENTATION

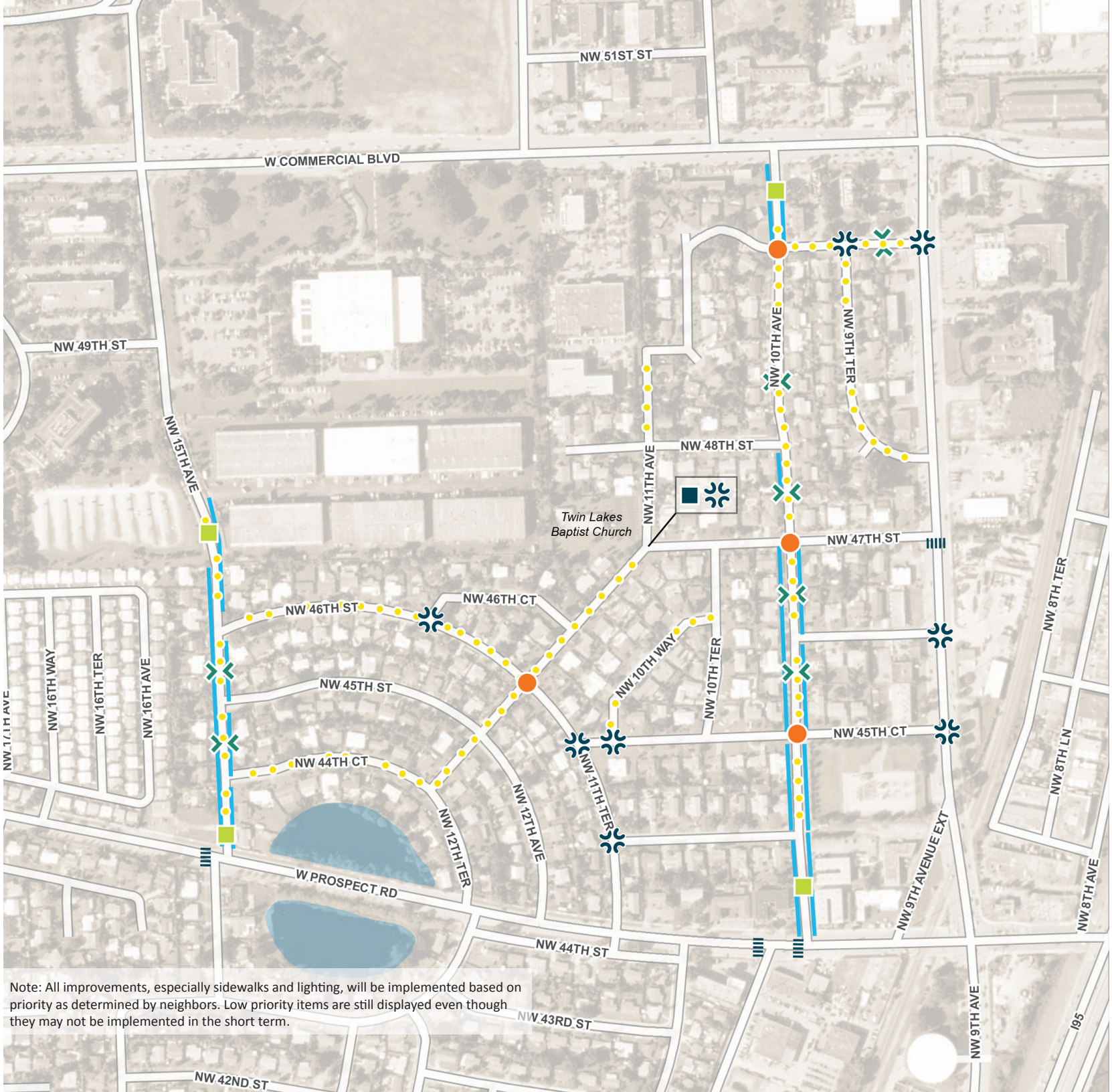
Many of the strategies in this plan will require further study prior to implementation. This will include coordination with the neighbors who live in close proximity to the improvement location and technical analysis to determine the most appropriate design, exact location, and signage for the strategy.

For example, it may be determined that a chicane with three alternating edge islands is preferable to pinch point with two edge islands to narrow the road based on the surrounding neighbor's desires. Another example would be the creation of a raised intersection in place of a mini roundabout based on available space and other considerations.

FIGURE 16

NEIGHBORHOOD STREETS MASTER PLAN





Note: All improvements, especially sidewalks and lighting, will be implemented based on priority as determined by neighbors. Low priority items are still displayed even though they may not be implemented in the short term.

MINI ROUNDABOUT

Flagler Village Mini Roundabout. Credit: Kittelson & Associates, Inc.

A small circular island used in the middle of intersections to force vehicular traffic to slow and negotiate around it. They also increase vehicular safety. It may be landscaped and may have mountable curbs. Raised intersections may be used in place of mini roundabouts, if desired, but may not be as effective at traffic calming.

RAISED INTERSECTION

Miami Road Raised Intersection. Credit: Kittelson & Associates, Inc.

The entire area of an intersection is raised above normal pavement surface level to reduce vehicle speed through the intersection and provide a better view of pedestrians and motorists in the intersection. This was recommended in the park to help enhance pedestrian safety.

TIGHTEN TURNING RADII

Concept for Tightening Radii. Credit: Kittelson & Associates, Inc

Large turning radii facilitate faster vehicle turning movements and increase crossing distance for pedestrians. Reducing the curb radii will aid in slowing vehicles and improve pedestrian safety. It may also discourage cut-through traffic.

ACCESS TREATMENTS / CLOSURES

Coral Ridge Country Club Gateway. Credit: Kittelson & Associates, Inc.

Example of Speed Feedback Sign. Credit: FHWA

Access treatments indicate to drivers that they are entering a neighborhood. Treatments can include medians, landscaping, land marks, signage, or restrictive treatments like partial or full closures. Treatments can be phased, may vary and should be designed and agreed upon by the community and City. If closures are implemented, further study is needed to evaluate the full implications of the closure(s) on nearby streets and intersections. Speed feedback signs may also be used at gateways to the neighborhood in conjunction with posted area speed limit signs. Note: NW 15th Avenue was closed as a pilot project associated with a development project in the late 1990s; however, it was subsequently reopened.

PINCH POINT

Floranada Road Pinch Point. Credit: Kittelson & Associates, Inc.

Pinch points narrow the travel way, requiring drivers to slow down or yield to each other to maneuver through the area. They can be created using curb extensions, landscaping, or edge islands in the street.

MARKED PEDESTRIAN CROSSING

Raised Pedestrian Crossing at Pinch Point. Source: FHWA

Marked crosswalks are recommended at several locations along Powerline and Prospect Road to improve access. The design may vary by location with some including refuge islands, rectangular rapid flashing beacons, and illumination to increase visibility of pedestrians.

5' SIDEWALK

5' Sidewalk with Buffer. Credit: Google

Sidewalks provide a minimum level of comfort for pedestrians. Neighbors noted that they enjoy being able to walk in the street, but that the traffic volumes and speeds are uncomfortable on 15th Ave and 10th Ave. Sidewalks will improve pedestrian comfort and accessibility on those streets.

PED LIGHTING

Pedestrian Lighting in Flagler Village. Credit: Google

Installing pedestrian-scale lighting, especially at locations that are not fronted by homes, will create a safer and more comfortable environment for walking. These lights can be solar powered to save energy and promote sustainability

TRUCK SIGNAGE + DELIVERY PROGRAM

Illustration of Trucks Offtracking from Roadway at NW 49th Street. Credit: Google.

Existing Twin Lakes Truck Signage. Credit: Kittelson & Associates, Inc.

Neighbors expressed concern over trucks on neighborhood streets. To discourage this, a program involving signage, delivery coordination, and enforcement is recommended to solidify preferred delivery routes that minimize disruption to the neighborhood. Signage will need to be provided far enough in advance to provide trucks with alternate routes; further study and coordination will be needed to develop the program based on origin and destination of the truck traffic and frequency/time of their current trips.

EXTERNAL STREETS MASTER PLAN

The External Streets Master Plan considers the three roadways that bound Twin Lakes North: Prospect Road, Powerline Road, and Commercial Boulevard. Left-turn lanes are provided at some key entrances to the neighborhood from the surrounding streets. In other locations, medians restrict access to right-in, right-out. Commercial Boulevard is the only external road that currently has bicycle facilities. Although the majority of the roads have sidewalks, pedestrian access across the roads is limited to a few crosswalk locations. Transit routes serve both Commercial Boulevard and Powerline Road.

The main goal of the External Streets Master Plan is to improve these streets for pedestrians, bicyclists, and transit riders. Prospect Road is owned by Broward County. Powerline Road and Commercial Boulevard are owned by the Florida Department of Transportation; therefore the final definition and implementation of improvements need to have approval from the County and State. Although this plan is part of the overall Neighborhood Master Plan, these streets are designated as County and State roads and they serve to provide regional and local connectivity. These streets are funded by different sources and in a different manner than the neighborhood streets. Additionally, due to the complex nature of these streets, these improvements are intended to be high level suggestions that may change based on further analysis. There are opportunities to influence improvements, especially during resurfacing projects and for safety improvements such as crosswalks.

The descriptions below and on the following pages provide various details for each strategy. Figure 17 displays the External Streets Master Plan.

TIGHTEN TURNING RADII

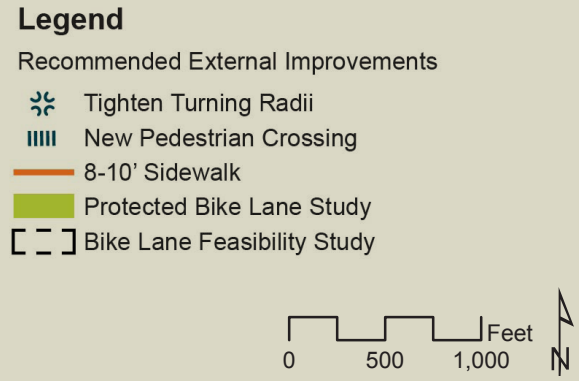
Large turning radii facilitate faster vehicle turning movements and increase crossing distance for pedestrians. Reducing the curb radii will aid in slowing vehicles and improve pedestrian safety. It may also discourage cut-through traffic. The designs will vary and be determined through future study.

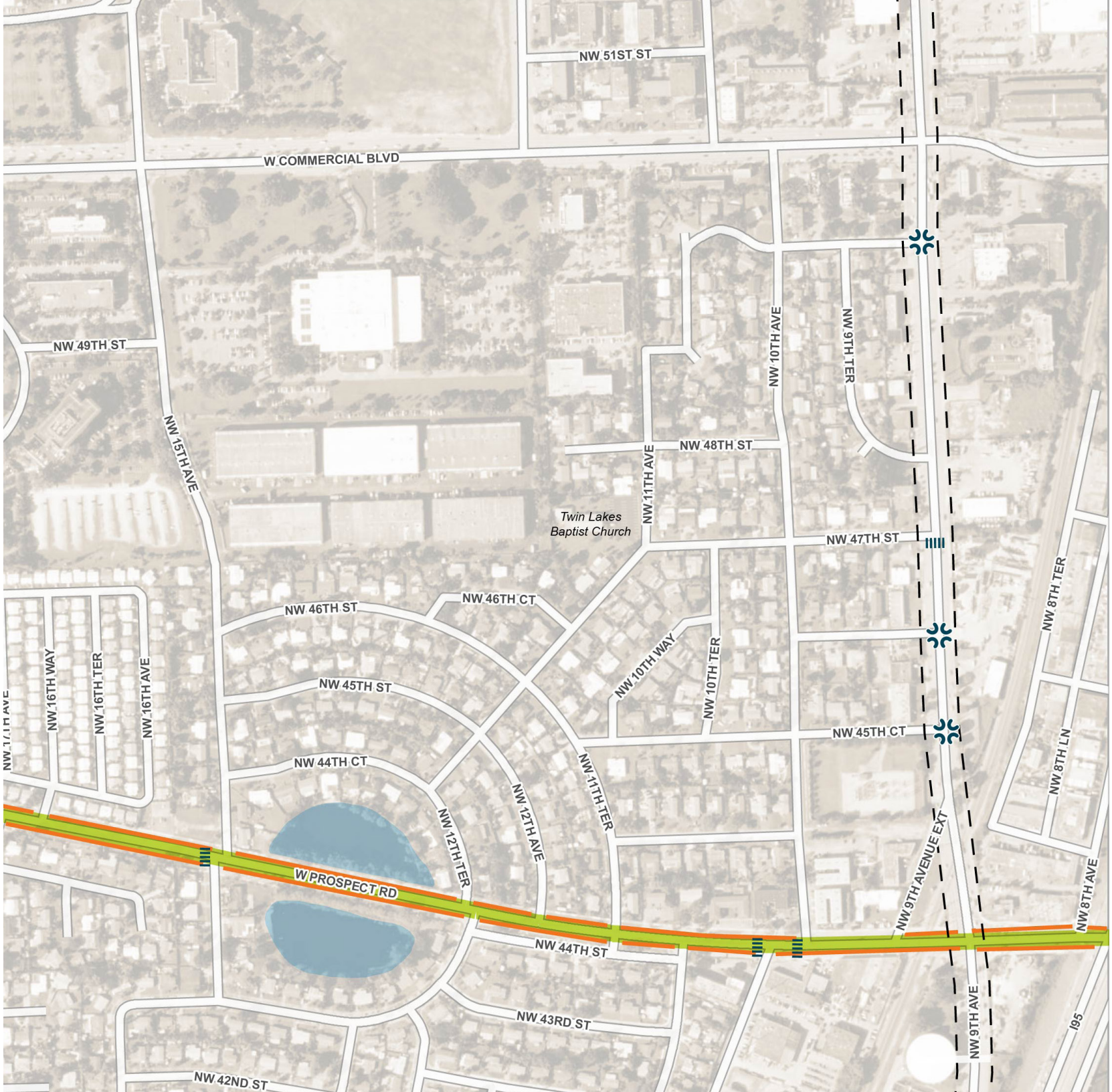
MARKED PEDESTRIAN CROSSING

Marked crosswalks are recommended at several locations along Powerline and Prospect Road to improve access. The design may vary by location with some including refuge islands, rectangular rapid flashing beacons, and illumination to increase visibility of pedestrians.

FIGURE 17

EXTERNAL STREETS MASTER PLAN

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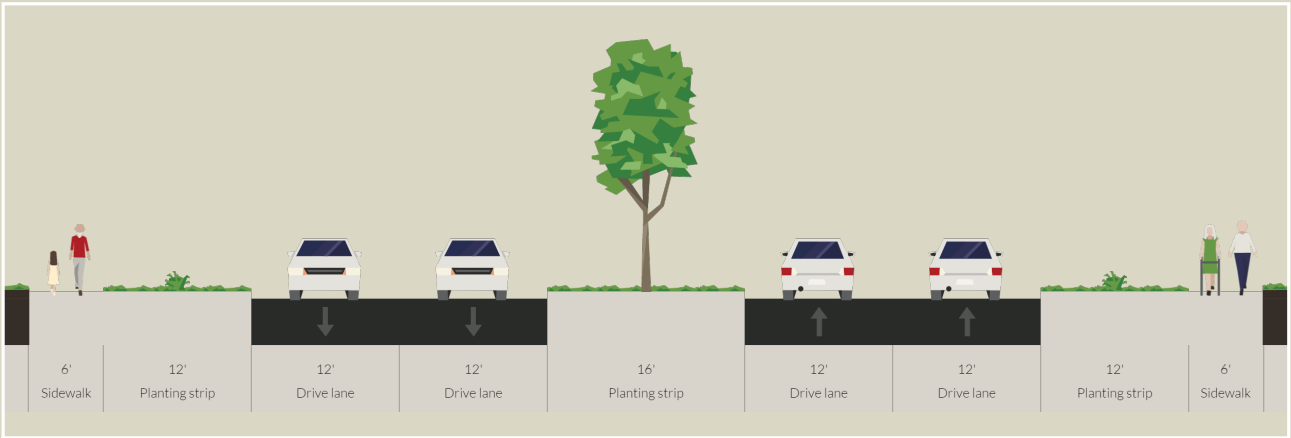
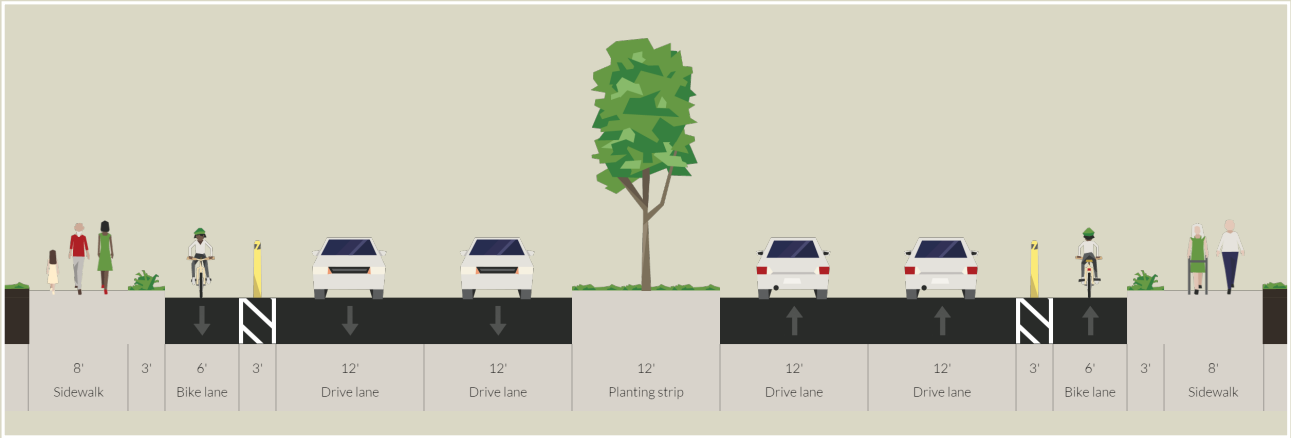
FEASIBILITY STUDY FOR PROTECTED BIKE LANES ON PROSPECT ROAD

Prospect Road serves as a major east-west connection. Connecting the Blocks, Fort Lauderdale's Multimodal Connectivity Plan, recommends that Prospect Road be redesigned by removing turn lanes and narrowing vehicle travel lanes to create buffered bike lanes, completing sidewalks with buffers on both sides, adding pedestrian scale lighting, and installing enhanced crossings. While removing the turn lanes is one way to obtain additional width for bike lanes, a feasibility study is recommended to determine whether the bike lanes could be constructed in the existing grass buffer area or through lane reassignment. If turn lanes are removed, the study should evaluate how operations will be affected at intersections along Prospect Road. Protected bike lanes are recommended over buffered bicycle lanes to provide physical separation between vehicles and bicycles due to the high speeds on Prospect Road. The proposed cross-section here shows one potential option for accommodating a protected bike lanes while maintaining the center median and turn lanes.



EXISTING SECTION ON PROSPECT ROAD



POTENTIAL SECTION ON PROSPECT ROAD

Note: This cross section is conceptual and was created to provide an example of one possible scenario to be studied further in the future. Before any cross section change is made, further study should be undertaken to understand the constraints of the roadway and determine final design.

BIKE LANE FEASIBILITY STUDY ON POWERLINE ROAD

Connecting the Blocks recommends that a lane reassignment be applied to Powerline Road to create space for buffered bike lanes and sidewalk buffers. These improvements should be coordinated with and tie into the lane reassignment project that is planned to the south in Wilton Manors and Oakland Park. The Plan also recommends that bus shelter pads, pedestrian-scale lighting, shade, and enhanced pedestrian crossings be installed. A feasibility study is recommended to further evaluate whether a lane reassignment is feasible for this section of Powerline Road and to develop the preferred cross-section. Protected bike lanes may be recommended over buffered bike lanes to provide a physical barrier between vehicles and bicycles due to the high traffic volumes on this road. However, the feasibility study should evaluate the buffered and protected options considering all site-specific details such as driveways. Protected bike lanes may be difficult to implement with frequent driveways along the corridor. An access management plan should be developed to consolidate driveways if protected bike lanes are preferred. The proposed cross-section provided here provides one potential option.

EXISTING SECTION ON POWERLINE ROAD

POTENTIAL SECTION ON POWERLINE ROAD

Note: This cross section is conceptual and was created to provide an example of one possible scenario to be studied further in the future. Before any cross section change is made, further study should be undertaken to understand the constraints of the roadway and determine final design.

SUSTAINABILITY BEST PRACTICES

SUGGESTIONS FOR IMPROVING SUSTAINABILITY THROUGH DESIGN

As a coastal city, Fort Lauderdale depends on and is sustained by water. This has been one of the City's greatest assets since its inception, however it has also posed some unique challenges. The City is frequently the path of hurricanes during hurricane season and continuously faces the impacts of climate change, such as sea level rise, tidal flooding, increased frequency and intensity of rainfall events, salt water intrusion into the water supply, and other related issues. To prepare for and address these issues, Fort Lauderdale has implemented adaptive measures to ensure the sustainability of the City's infrastructure and strives to incorporate sustainable practices into daily operations. These efforts are supported by policy in the City's 2035 Vision, Fast Forward Fort Lauderdale, and in the 2018 Strategic Plan, Press Play Fort Lauderdale.

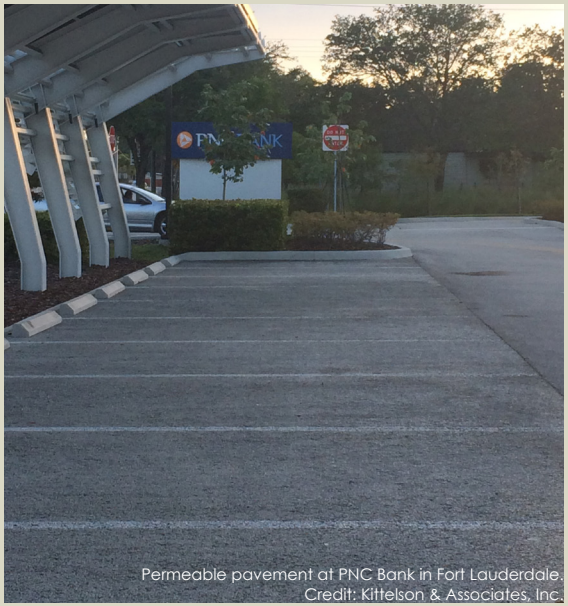
In recognition and support of the City's goals and vision, it is recommended that strategies to support sustainability be woven throughout the improvements recommended in the Twin Lakes North Neighborhood Mobility Master Plan. The strategies discussed can be incorporated into the design of some of the improvements that is implemented as a result of this plan. Not only do they provide resiliency, but they improve the environment and beautify the surroundings. These treatment details were not presented to the community, but they are generally accepted practices for sustainability should the community wish to include them.

MANAGE STORMWATER RUNOFF

Rain Garden in Swale. Credit: Edward Belden, Los Angeles and San Gabriel Rivers Watershed Council

Drainage and flooding are increasingly becoming important considerations throughout Fort Lauderdale due to impacts to the drainage system from sea level rise and increased frequency and intensity of sea level rise. In addition to the use of pervious surfaces, tree-lined streets, and native landscaping, there are other methods of managing stormwater (and associated drainage issues). For example, rain gardens can be planted in small parks that collect, store, and filter rainwater. They, and other retention and filtration techniques, can also be incorporated into curb extensions, chicanes, and street planters.

PERMEABLE SURFACES



Permeable pavement at PNC Bank in Fort Lauderdale.
Credit: Kittelson & Associates, Inc.

Impermeable surfaces, such as traditional roads, driveways, sidewalks, and any other surface that prevents water penetration into the soil disrupt the flow of water into natural drainage cycles. Therefore, the use of impervious surfaces can exacerbate stormwater runoff and associated flooding and pollution issues. Permeable pavements should be considered for all new sidewalk, street, and driveway projects to help alleviate these issues. The aesthetics of permeable paving can also give the illusion of a narrower street and help to calm traffic.

TREE-LINED AND SHADED STREETS

Tree Lined Street in Victoria Park.
Credit: Kittelson & Associates, Inc.

Street trees help create a sense of enclosure along the road (sometimes referred to as a "street wall"), narrowing a driver's field of vision and thus encouraging lower vehicle speeds. If placed between the road and the sidewalk, they can help provide a physical and visual buffer between pedestrians and vehicles. They also help to lower temperatures, provide shade for pedestrians, and absorb stormwater and airborne pollutants including carbon dioxide, a greenhouse gas.

NATIVE LANDSCAPING

Native landscaping at PNC Bank in Fort Lauderdale.
Credit: Kittelson & Associates, Inc.

Native landscaping involves using plants and other vegetation that is indigenous to the Fort Lauderdale area. Plants native to a specific region have adapted to the local soil, conditions, and weather patterns. Therefore, native plants are low maintenance and do not require much (or any) pesticides, fertilizers, watering, or mowing. As a whole, this improves the quality of the air, water, and environment while conserving water, energy, and money.

COST ESTIMATES + TIMING

Planning-level cost estimates and typical construction timelines were developed for the improvements identified in this plan. The cost estimates and project timelines in Figure 18 are intended to assist the community in prioritizing improvement solutions. The timelines include the length of time for design and construction of each improvement. The Master Plan map has been included for reference on the opposite page.

Due to multiple agencies being responsible for the maintenance and operations for the roadways in the External Streets Master Plan, available funding and costs are not reflected herein. Those costs and funding will need to be determined outside of this plan among the various responsible agencies.

FIGURE 18

COST ESTIMATES AND TIMING

The cost estimates present a high level picture of the costs for the improvements for planning purposes only. They include construction costs but do not take into account the costs of design, construction engineering inspection, the movement of utilities, or impacts or changes to existing drainage structures. Additionally, appropriate resources should be used to create a context-sensitive concept in the design of each improvement from which to base a more detailed cost estimate.

The timing estimates associated with each improvement represent the general length of time from design through construction. They do not represent prioritization or actual project timelines, and are intended to provide a general picture of the length of time that it may take to complete a project once it has begun.

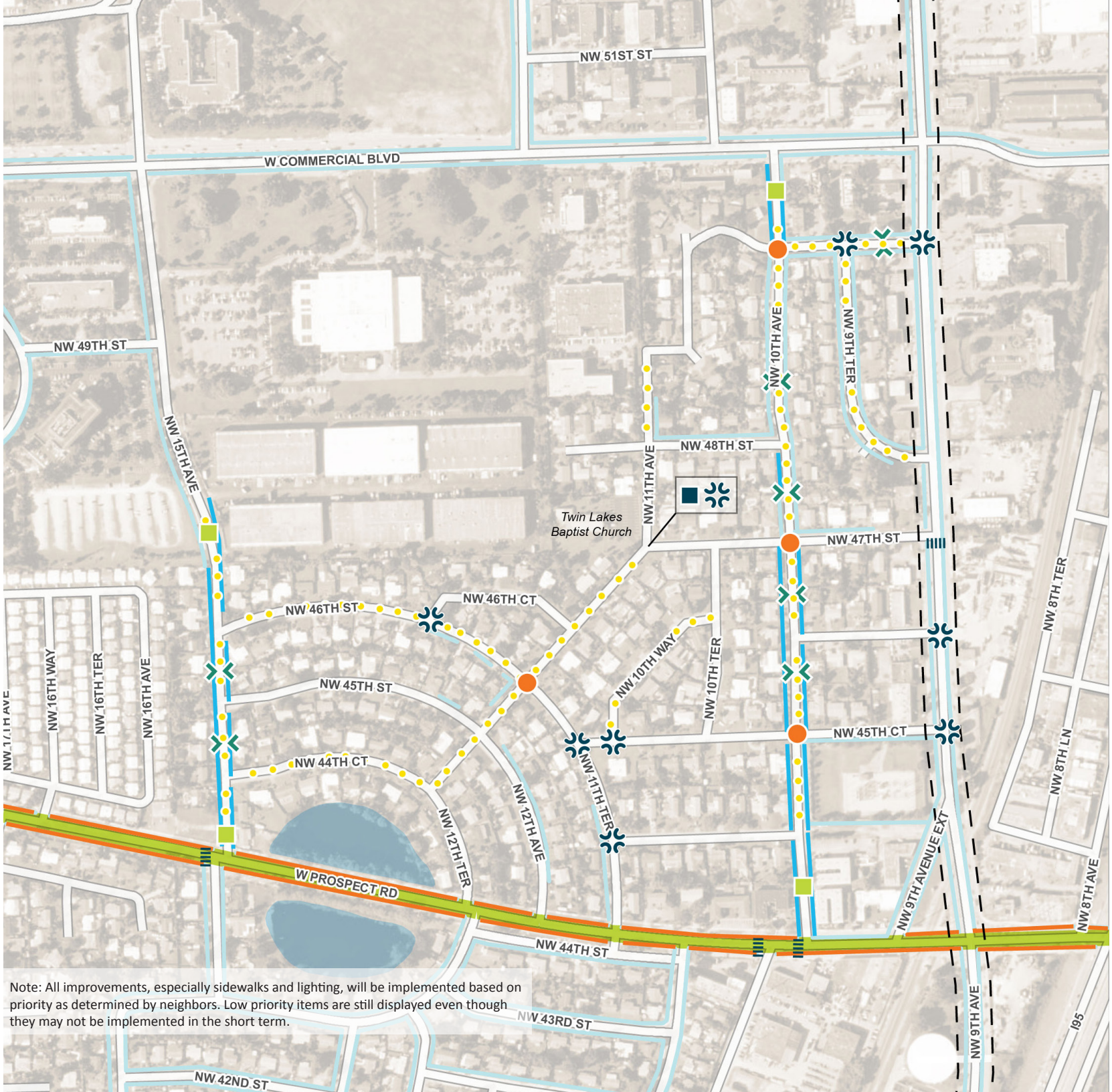
Improvement*	Quantity (Number or total feet)	Per Unit Improvement Cost** (in 2015 Dollars)		Total Cost** (in 2015 Dollars)		Timing
		Low End	High End	Low End	High End	
Internal Streets						
Mini Roundabout	4 Locations	$40,600	$45,600	$162,400	$182,400	●
Raised Intersection	1 Locations	$30,000	$33,700	$30,000	$33,700	●
Pinch Point	6 Locations	$2,000	$2,300	$12,000	$13,800	●
Tighten Turning Radii	5 Locations	Varies	Varies	$1,800	$2,500	●
5' Sidewalk	4,825 Feet	$39	$44	$188,175	$212,300	●
Pedestrian Lighting	291 Lights	$4,500 (Average cost per solar powered pedestrian light in City of Fort Lauderdale)		$1,309,500		●
Access Treatment/ Closure	4 Locations	Based on Agreed Upon Design				●
Truck Signage + Delivery Program	N/A	Based on Agreed Upon Design				●

IMPROVEMENT TIMING/PHASING KEY

- ● Less than 2 Years
- ● 2 to 5 Years

Notes:

* Cost estimates include construction costs but do not include design and construction engineering inspection costs. Low end estimate is based on a 20 percent contingency and high end estimates are based on a 30 percent contingency.



Note: All improvements, especially sidewalks and lighting, will be implemented based on priority as determined by neighbors. Low priority items are still displayed even though they may not be implemented in the short term.

6 NEXT STEPS

NEXT STEPS

The Twin Lakes North Neighborhood Mobility Master Plan is a community driven plan based on input from residents and supported by data and analysis. It is intended to provide a roadmap to a safe, connected, comfortable, and multimodal transportation network within and around Twin Lakes North. It is also one piece of the greater puzzle that, when complete, will help to achieve the City of Fort Lauderdale's vision for strong and connected neighborhoods.

This plan is comprehensive and is intended to be implemented over time as funds become available and the community members see fit. Therefore, further prioritization is needed to ensure that the implementation schedule accurately represents the needs and desires of the community members. This prioritization is left to the discretion of the Twin Lakes residents, however the City of Fort Lauderdale staff intends to help guide the residents in developing this prioritization.

To assist in the prioritization process, each internal street improvement has been assigned a number of points based on the prioritization methodology developed in the City's Connecting the Blocks plan. External streets were also considered as part of this to help quantify the benefits of the improvements even though they will likely be made as FDOT, developers, or the City implements other projects. The methodology takes into account the prioritization needs developed by the City and the Broward Metropolitan Planning Organization. However, because the improvements were ranked on a project basis as opposed to as a whole, the scoring should not be considered comprehensive and instead should be taken as one data point in the overall prioritization process. The scoring and scoring criteria can be found in Appendix B.

Regarding the funding of the plan, a variety of sources are available now and more will likely become available in the future. The creation and adoption of this plan strengthens Twin Lakes North eligibility for those funds, and neighborhood support increases the likelihood that improvements will be built. Possible funding sources include grants applied for by the neighborhood, the City, Broward County, the Broward Metropolitan Planning Organization, and the Florida Department of Transportation; a variety of other innovative sources as they are developed; and private developers as new construction occurs around the neighborhood.

APPENDIX A

MAP OF SPEED AND VOLUME COUNT LOCATIONS

MAP OF SPEED AND
VOLUME COUNT LOCATIONS

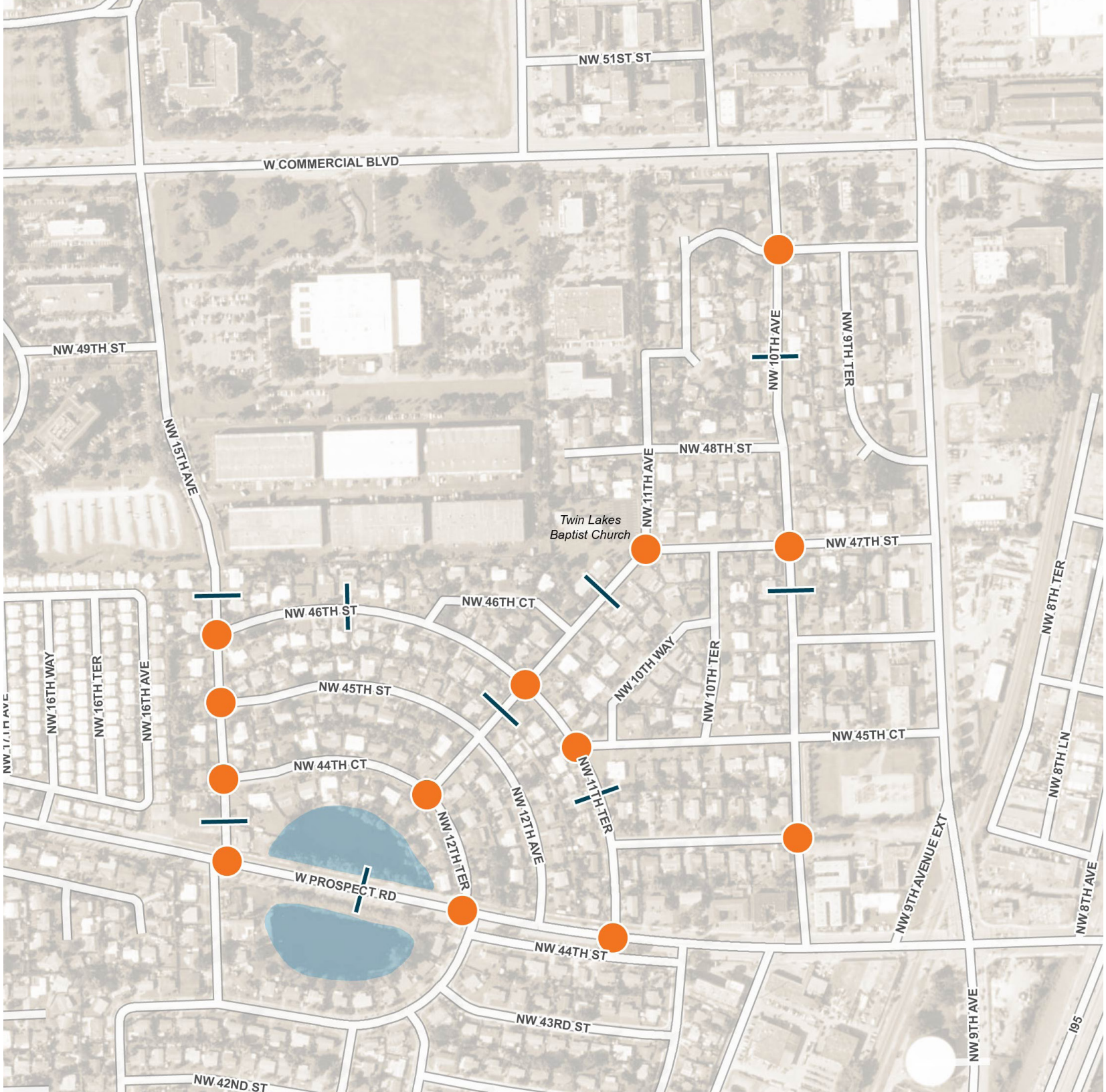
Legend

Counts

- Intersection Turning Movement
  + Ped/Bike Volume
- Mid-Block Volume and Speed

0 500 1,000 Feet

N


NW 51ST ST
W COMMERCIAL BLVD
NW 49TH ST
NW 15TH AVE
NW 10TH AVE
NW 9TH TER
NW 48TH ST
NW 11TH AVE
Twin Lakes
Baptist Church
NW 47TH ST
NW 46TH ST
NW 46TH CT
NW 10TH WAY
NW 10TH TER
NW 8TH TER
NW 45TH ST
NW 45TH CT
NW 16TH WAY
NW 16TH TER
NW 16TH AVE
NW 44TH CT
NW 11TH TER
NW 12TH AVE
NW 12TH TER
NW 8TH LN
W PROSPECT RD
NW 9TH AVENUE EXT
NW 8TH AVE
NW 44TH ST
NW 43RD ST
NW 9TH AVE
I95
NW 42ND ST

APPENDIX B

PLANNING LEVEL PRIORITIZATION SCORING

PRIORITIZATION CRITERIA, WEIGHT, AND THRESHOLDS

TABLE 21. PRIORITIZATION CRITERIA, WEIGHTS, AND THRESHOLDS

MEASURE		WEIGHT	BENEFIT CATEGORIES	DESCRIPTION	THRESHOLDS	POINTS
	PROJECT BENEFITS					
1	Anticipated improvement in pedestrian/bicyclist safety	2	Safety	Project type typically improves pedestrian and bicyclist safety.	Minimal Moderate Substantial	0 1 2
2	Anticipated safety benefit to segment with history of fatal or severe injury pedestrian and bicycle crashes	2	Safety	Based on most recent crash maps for City of Fort Lauderdale.	Minimal Moderate Substantial	0 1 2
3	Support of regional transit services and/or premium transit services	3	Travel Choices, Sustainability	Planned premium transit services shown in the LRTP are in the corridor.	Minimal Moderate Substantial	0 1 2
4	Enhancement of transit stops	1	Travel Choices, Sustainability	Project creates space for enhanced transit stops (e.g., sidewalk buffer)	Minimal Moderate Substantial	0 1 2
5	Closure of sidewalk network gaps	5	Connectivity, Safety, Travel Choices, Health Benefits	New sidewalks constructed to close gaps and make new connections.	Minimal Moderate Substantial	0 1 2
6	Closure of bicycle network gaps	5	Connectivity, Safety, Travel Choices, Health Benefits	New bicycle facilities constructed to close gaps and make new connections.	Minimal Moderate Substantial	0 1 2
7	Improvement of street crossings for non-automobile modes	3	Connectivity, Safety, Travel Choices, Health Benefits	Project enhances street crossings.	Minimal Moderate Substantial	0 1 2
8	Support of active transportation	5	Quality of Life, Sustainability, Economic Benefit	Project improves areas with high Active Transportation Demand Scores	Minimal Moderate Substantial	0 1 2
9	Improvement of multimodal system quality	4	Quality of Life, Travel Choices, Economic Benefit	Project adds pedestrian-scale lighting, shade, buffers, and other quality elements	Minimal Moderate Substantial	0 1 2
10	Incorporation of sustainability elements to adapt to climate change	4	Sustainability, Safety, Connectivity	Project adds stormwater management, shade, LED lighting, and drought resistant features.	Minimal Moderate Substantial	0 1 2
	PROJECT FEASIBILITY					
11	Opportunity to qualify for federal or other funding	1	N/A	Corridor study and/or livability study involving multiple jurisdictions and/or agencies	Minimal Moderate Substantial	0 1 2
12	Freedom from obstacles to implementation	5	N/A	Timeline, agency approvals, need for land acquisition, contract capacity, etc.	Minimal Moderate Substantial	0 1 2
13	Community support	5	N/A	Consistency with the Multimodal Connectivity Map	Minimal Moderate Substantial	0 1 2

Details of the Project Benefits criteria in Table 21 and the proposed scoring procedure are as follows:

- Anticipated improvement in pedestrian/bicyclist safety. Crossing enhancements score a 1. Projects that reduce crossing distance score a 2. Projects that separate bicyclists from automobiles score a 2. (The Highway Safety Manual (HSM) indicates that these project types tend to improve pedestrian/bicyclist safety.)

- Anticipated improvement to segment with history of fatal or severe injury pedestrian/bicycle crashes. This applies only to segments with a history of fatal or severe injury pedestrian/bicycle crashes. Projects that create separation between pedestrians and automobiles or between bicyclists and automobiles score a 2. Other project types that the HSM indicates tend to improve pedestrian/bicyclist safety score a 1.

- Support of regional and premium transit services. Projects that create new regional and premium transit services score a 2. Projects that enhance existing regional and premium transit services score a 1. This also applies to pedestrian/bicycle projects that are within 1/4 mile of The Wave and Tri-Rail. Projects that create pedestrian/bicycle connections to The Wave and Tri-Rail score a 2. Projects that enhance existing pedestrian/bicycle connections to The Wave and Tri-Rail score a 1.

- Enhances transit stops. Projects that add a sidewalk buffer score a 1. Projects that add bus stop amenities score a 2.

- Closure of sidewalk network gaps. Projects that complete existing sidewalks score a 1. Projects that construct more extensive, new sidewalks score a 2.

- Closure of bicycle network gaps. Projects that complete existing bicycle facilities score a 1. Projects that construct more extensive, new bicycle lanes score a 2. Projects that add sharrows score a 1.

- Improves street crossings for non-automobile modes. Projects that include 1-2 crossing enhancements score a 1. Projects that include 3 or more crossing enhancements score a 2.

- Supports active transportation. Projects that serve Census tracts ranked in the top 1-10 for Active Transportation Demand score a 2. Projects in the top 10-20 score a 1.2. (Active Transportation Demand Score is an index developed by the City of Portland, Oregon, for use in prioritizing multimodal projects. It accounts for population density, business density, percent of population less than 17 years old, percent of population greater than or equal to 65 years old, percent of population that is non-white, percent of households below the poverty line, and percent of households with no access to an automobile. These demographic characteristics are traditionally tied to propensity to travel by non-automobile modes.

- Improves multimodal system quality. Projects that add 3-4 of sidewalk buffers, bicycle lane buffers, pedestrian-scale lighting, and shade score a 2. Projects that add 1-2 of those elements score a 1.

- Incorporation of sustainability elements to adapt to climate change. Projects that add 3-4 of stormwater management, shade, LED lighting, and drought resistant features score a 2. Projects that add 1-2 of those elements score a 1.

Details of the Project Feasibility criteria in Table 21 and the proposed scoring procedure are as follows:

- Opportunity to qualify for federal or other funding. Projects score a 1 if they are located in a major corridor, are located in corridors that affect multiple jurisdictions, or are livability projects. Projects score a 2 if they are consistent with projects identified in the CIP, Transportation Improvement Program (TIP), or LRTP.

- Freedom from implementation obstacles. Projects on State and County roads score a 1. Projects on City roads score a 2.

- Community support. Projects consistent with the previously supported neighborhood plans (which were created with public input) score a 1. Projects consistent with the City Commission approved Neighborhood or Master Plans score a 2.

INTERSECTION IMPROVEMENTS - INTERNAL STREETS

Location	Treatment	Reason	Comments	Prioritization Score	Measure												
					1	2	3	4	5	6	7	8	9	10*	11	12	13
NW 15th Avenue/North Neighborhood Entrance	Access Treatment	Traffic Calming		22	0	0	0	0	0	0	0	2	0		0	2	2
NW 15th Avenue/Prospect Road	Access Treatment	Traffic Calming		22	0	0	0	0	0	0	0	2	0		0	2	2
NW 46th Street/NW 46th Court	Tighten Turning Radii	Traffic Calming		25	0	0	0	0	0	0	1	2	0		0	2	2
NW 46th Street/Twin Lakes Boulevard	Mini Roundabout	Traffic Calming; Safety	Changed to mini roundabout based on final community comments.	22	0	0	0	0	0	0	0	2	0	0	0	2	2
NW 45th Court/NW 11th Terrace	Tighten Turning Radii	Traffic Calming		25	0	0	0	0	0	0	1	2	0	0	0	2	2
NW 45th Street/NW 11th Terrace	Tighten Turning Radii	Traffic Calming		25	0	0	0	0	0	0	1	2	0	0	0	2	2
NW 10th Way/NW 45th Court	Tighten Turning Radii	Traffic Calming		25	0	0	0	0	0	0	1	2	0	0	0	2	2
NW 10th Avenue/Prospect Road	Access Treatment	Traffic Calming		22	0	0	0	0	0	0	0	2	0	0	0	2	2
NW 45th Court/NW 10th Avenue	Mini Roundabout	Traffic Calming		22	0	0	0	0	0	0	0	2	0	0	0	2	2
NW 47th Street/NW 10th Avenue	Mini Roundabout	Traffic Calming; Safety		22	0	0	0	0	0	0	0	2	0	0	0	2	2
NW 47th Street/Twin Lakes Boulevard/NW 11th Avenue	Raised Intersection	Traffic Calming; Pedestrian Safety and Connectivity	Changed to raised intersection based on final community comments.	31	1	0	0	0	0	0	1	2	1	0	0	2	2
NW 47th Street/Twin Lakes Boulevard/NW 11th Avenue	Tighten Turning Radii	Traffic Calming	Added based on final community comments; could be done in conjunction with raised intersection installation.	25	0	0	0	0	0	0	1	2	0	0	0	2	2
NW 10th Avenue/NW 49th Street	Mini Roundabout	Traffic Calming		22	0	0	0	0	0	0	0	2	0	0	0	2	2
NW 49th Street/NW 9th Terrace	Tighten Turning Radii	Traffic Calming		25	0	0	0	0	0	0	1	2	0	0	0	2	2
NW 10th Avenue/ Commercial Boulevard	Access Treatment	Traffic Calming		22	0	0	0	0	0	0	0	2	0	0	0	2	2

INTERSECTION IMPROVEMENTS - EXTERNAL STREETS

Location	Treatment	Reason	Comments	Prioritization Score	Measure												
					1	2	3	4	5	6	7	8	9	10*	11	12	13
NW 49th Street/Powerline Road	Tighten Turning Radii	Traffic Calming	Intersection with County road requires County approval	21	0	0	0	0	0	0	1	2	0	0	1	1	2
NW 46th Street/Powerline Road	Tighten Turning Radii	Traffic Calming	Intersection with County road requires County approval	21	0	0	0	0	0	0	1	2	0	0	1	1	2
NW 45th Court/Powerline Road	Tighten Turning Radii	Traffic Calming	Intersection with County road requires County approval	21	0	0	0	0	0	0	1	2	0	0	1	1	2
NW 47th Street/Powerline Road	Pedestrian Crossing	Pedestrian Access	Intersection with County road requires County approval	28	2	0	1	0	0	0	1	2	0	0	1	1	2
NW 15th Avenue/Prospect Road	Pedestrian Crossing	Pedestrian Access	Intersection with County road requires County approval	28	2	0	1	0	0	0	1	2	0	0	1	1	2
NW 10th Avenue/Prospect Road	Pedestrian Crossings	Pedestrian Access	Intersection with County road requires County approval	28	2	0	1	0	0	0	1	2	0	0	1	1	2

SEGMENT IMPROVEMENTS - INTERNAL STREETS

Street	From	To	Treatment	Reason	Potential Issues	Priority Score	Measure												
							1	2	3	4	5	6	7	8	9	10*	11	12	13
NW 15th Avenue	Prospect Road	North Neighborhood Entrance	Pedestrian Scale Lighting	Traffic Calming; Pedestrian Access and Safety		24	0	0	0	0	0	0	0	0	1	0	0	2	2
NW 15th Avenue	Prospect Road	North Neighborhood Entrance	Sidewalk Infill	Pedestrian Access and Safety		33	2	0	0	0	1	0	0	0	1	0	0	2	2
NW 15th Avenue	Prospect Road	North Neighborhood Entrance	Pinch points	Traffic Calming		20	0	0	0	0	0	0	0	0	0	0	0	2	2
NW 44th Court	NW 10th Avenue	Twin Lakes Boulevard	Pedestrian Scale Lighting	Safety		24	0	0	0	0	0	0	0	0	1	0	0	2	2
NW 46th Street	NW 10th Avenue	Twin Lakes Boulevard	Pedestrian Scale Lighting	Safety		24	0	0	0	0	0	0	0	0	1	0	0	2	2
Twin Lakes Boulevard	NW 12th Terrace/ NW 44th Court	NW 47th Street	Pedestrian Scale Lighting	Pedestrian Safety		24	0	0	0	0	0	0	0	0	1	0	0	2	2
NW 10th Way	NW 45th Court	NW 10th Terrace	Pedestrian Scale Lighting	Safety		24	0	0	0	0	0	0	0	0	1	0	0	2	2
NW 11th Avenue	NW 48th Street	NW 49th Street	Pedestrian Scale Lighting	Safety		24	0	0	0	0	0	0	0	0	1	0	0	2	2
NW 9th Terrace	Powerline Road	NW 49th Street	Pedestrian Scale Lighting	Safety		24	0	0	0	0	0	0	0	0	1	0	0	2	2
NW 10th Avenue	NW 45th Street	NW 45th Court	Pedestrian Scale Lighting	Safety		24	0	0	0	0	0	0	0	0	1	0	0	2	2
NW 10th Avenue	NW 45th Court	NW 49th Street	Pedestrian Scale Lighting	Safety		24	0	0	0	0	0	0	0	0	1	0	0	2	2
NW 10th Avenue	NW 45th Court	NW 49th Street	Pinch points	Traffic Calming		20	0	0	0	0	0	0	0	0	0	0	0	2	2
NW 10th Avenue	Prospect Road	Commercial Boulevard	Sidewalk Infill	Pedestrian Safety		33	2	0	0	0	1	0	0	0	1	0	0	2	2

SEGMENT IMPROVEMENTS - EXTERNAL STREETS

Street	From	To	Treatment	Reason	Potential Issues	Priority Score	Measure												
							1	2	3	4	5	6	7	8	9	10*	11	12	13
Powerline Road	Prospect Road	Commercial Boulevard	Feasibility Study for Pedestrian and Bicycle Facilities	Pedestrian and Bicycle Access	County road; requires further study	57	2	2	0	1	2	2	1	0	2	0	2	1	2
Prospect Road	NW 15th Avenue	Powerline Road	Feasibility Study for Protected Bike Lanes	Pedestrian and Bicycle Access	County road; requires further study	56	2	0	1	1	2	2	1	0	2	0	2	1	2

CITY OF FORT LAUDERDALE