City of Naples, Florida

Pedestrian & Bicycle Master Plan
2022 Update

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Executive Summary

The intent of the 2022 Naples Pedestrian and Bicycle Master Plan Update is to take a fresh look at existing conditions, identify the factors that impact City residents' abilities to walk and/or bike for recreational, work, or personal needs, and present a list of recommendations to encourage walking and biking modes, while preserving the sense of place that is unique to the City of Naples.

While significant progress has been made in implementing the recommended projects from the original 2007 Pedestrian and Bicycle Plan and the 2013 Update, some projects remain unimplemented. Additionally, other developments, projects, existing conditions in Naples and City/State/National policies regarding transportation facilities have changed. The best practices and design guidance for pedestrian and bicycling facilities has changed dramatically since 2007, further emphasizing the need for a new Plan update.

Maps of the existing sidewalks and bicycle facilities in the City were compiled from City records. Pedestrian and bicycle crash data was evaluated and mapped, as were projects that have been programmed and funded for near future construction. Recommendations from the 2017 Downtown Mobility and Connectivity Plan were reviewed and incorporated into the 2022 Plan Update evaluations. Pedestrian and bicycle volume counts were obtained at strategic intersections to verify the current level of walking

and biking. Using these maps, gaps in the pedestrian and bicycle network were identified.

Descriptions and examples of current pedestrian and bicycle facility designs are included in the 2022 Plan Update. Current criteria that assists communities with deciding which pedestrian or bicycle facility is appropriate based on specific site conditions is also included.

A robust public outreach program was undertaken that included two (2) in-person public workshops, a corresponding on-line virtual meeting room option that presented the same materials as the in-person meeting, and an on-line survey and questionnaire to provide residents the opportunity to submit specific suggestions. Attempts at gathering public input via a survey did not provide the community any confidence in survey questions, methodology, or results. This was particularly demonstrated at the April 2021 City Council Workshop when the lead consultant working for the City indicated that the surveys were flawed. In response, City Council directed staff to work closely and directly with the twelve neighborhood property owners associations over the summer and rather than continue the public outreach effort with consultant, the Streets & Stormwater Department assumed lead on all public involvement efforts.

Using the existing conditions maps and other collected data, and guided by the community input, project recommendations were identified in detail. The projects were grouped by neighborhood association boundary to facilitate review and comment from the applicable association. For each project, the corresponding neighborhood association was asked to determine if they supported, did not support, or supported with modification. The Department summarized input from each meeting.

At the November City Council Workshop, City Council directed staff to work with the property owner associations to prioritize projects and reduce the extensive list of projects. This was completed and presented at the February City Council Workshop. City Council requested staff continue public outreach efforts with a robust public outreach to obtain community feedback on support of the updated projects list. The feedback was received and to be presented into the May City Council Workshop

The results of those decisions constitute the recommended projects list contained in the Recommendations Section of this report.

1

Introduction

In 2007, the Streets & Stormwater Department began implementation of the City of Naples' Pedestrian and Bicycle Master Plan. This particular Plan outlined new policies related to signing and marking bicycle routes around and to schools and to existing bicycle facilities, provided priorities for a sidewalk construction program and promoted education, awareness, and enforcement programs. The Plan also identified general recommendations for locations of new bicycle facilities and the type of bikeway to be considered.

By 2013, the City had successfully completed a significant portion of what was outlined in the 2007 Master Plan. At that time, the 2013 Master Plan Update was completed to focus on what priorities remained and a review of the prior recommendations from the 2007 Master Plan to reflect 2013 existing conditions and new input from City residents.

Since that time, many efforts have been made to implement the 2013 Plan recommendations, but some projects were not completed for a variety of reasons.

In 2017, the City completed a Downtown Mobility and Connectivity Study that identified the location of needed improvements on much of the downtown roadway network and identified the location of road, pedestrian, and bicycle facilities within each street corridor and the estimated cost for the infrastructure improvements in the study area.

The Florida Department of Transportation, District One conducted a study of the US 41 Naples Downtown area that looked at the congestion at US41 including the intersections of 5th Avenue South and Goodlette-Frank. The D-1 Planning Studio initiated the analysis to provide solutions related to the bottle neck along this corridor by reviewing the current design of the roadway and how to implement other treatments such as speed management, traffic calming, and enhancing accessibility within this area. Additionally, bicycle and pedestrian infrastructure and the need for opportunities along this corridor for safer crossing of US41 will be analyzed to help create an inviting environment for the community. The intent of the US41

Naples Downtown Concept Study is to meet these goals and objectives while creating a transportation network that is more appropriate to the users of this facility and the immediate needs and desires of the community. The study's next steps will continue with a Project Development and Environmental Study to develop the cross-section of the improvements that meet the goals of FDOT and the City.

Since the 2013 Plan Update, design guidance for bicycle and pedestrian infrastructure on local and State roadways has changed significantly. Additional resources are now available to help transportation planners and designers make informed trade-off decisions relating to the selection of pedestrian and bicycle facilities and association with motorized vehicular travel. These resources incorporate and build upon the Federal Highway Administration's (FHWA) support for design flexibility to assist communities in the development of connected, safe, and comfortable pedestrian and bicycle networks that meet the needs of people of all ages and abilities.

2

Vision

In 2007, the Naples City Council adopted a Vision Plan titled *"Preserving Naples: A vision plan to keep the best of the past while building a better community for the future."* In 2021, the Vision Plan was updated and incorporated into the City's Comprehensive Plan.

The elements of the Vision include:

- **OUR PLACE—Preserve Small Town Character and Culture.** We believe in maintaining and embracing the features that make Naples special: a town of residential neighborhoods, waterfronts, green spaces, boutique shopping areas, thriving arts, diverse special events, and friendly people.
- **OUR NATURE—Environmental Sensitivity.** We believe in the stewardship of our land and protection of our beaches, bays, river, estuaries, and lakes through education and investment that supports clean water, clean technology, and resilient coastlines.
- **OUR EXPERIENCE—Extraordinary Quality of Life for Residents.** We value keeping our community safe, clean, healthy, and balanced with opportunities for living, working, enrichment, and play.

- **OUR ECONOMY—Economic Health and Vitality.** We value the businesses and health care industry that enhance our small-town character as amenities that contribute to our collective success and well-being.

3

Goals and Objectives

The description of City expectations provided in the request for this study project identified a list of expectations the City has for completing the Master Plan Update using a robust community outreach effort to obtain input that would inform the decisions on the type, location, and elements of design associated with the pedestrian and bicycle improvements to be incorporated into an implementation plan. This new Master Plan identifies both type and locations for improvements needed, specific bicycle and pedestrian facilities within the City, and provides a planning level cost estimate and prioritization program to assist in seeking funding, programing projects, and coordinating with State, Federal, and County agencies.

Of significance is that each of the improvements and recommended programs were developed with input from the public using a range of tools, virtual and public meetings, social media, and historic comment that was part of the public record. While not every stated interest can ever be addressed for each individual person, great effort was made to consider the input received and evaluate a number of alternative solutions that would best serve the overall public interest.

4

Guidelines for Pedestrian Bicycle Treatments or facilities

Pedestrian and Bicycle Facility Treatment Selection

To highlight the suitable treatment for each of the pedestrian and bicycle recommendations, this section of the Master Plan Update highlights the conditions that will help City planners and engineers determine the most appropriate course of action. While engineering judgement and consideration of context is required, State and National design guidelines facilitate the best treatment for each roadway segment, intersection, or roadway crossing in Naples.

Connectivity and Safety

While much of the City of Naples provides a relatively well-connected network of sidewalks and to a lesser degree, bicycle facilities, numerous gaps remain. Connectivity is one of the most important aspects of a satisfactory pedestrian and bicycle network. The current gaps in the City's walking and bicycling networks typically lie along roadways, 1) in which pedestrian and bicycle facilities are not provided, and 2) where current or future demand for walking and biking is apparent. Gaps were identified in this planning study and categorized as either a Network Gap or a Destination Gap.

Network gaps are the most typical and lie between segments of the City's existing sidewalk network and path/bicycle lane network. Elimination of these gaps will create opportunities to bike or walk longer distances and make new connections to other neighborhoods and districts in Naples more efficient and safe.

Destination gaps are identified to specifically highlight corridors that have the potential to provide connections to individual destinations of neighborhood or Citywide significance. Eliminating these gaps will encourage more people to walk or bike to parks and beaches, schools, grocery stores, and shopping districts, many of which are not currently connected by sidewalks, shared use paths, or bike lanes.

Crash analysis of City pedestrian/bicycle crash data from 2011 to 2019 provided important insights into crash type, frequency, and location. The locations and clustering of the crashes were an important consideration during the planning of Naples' pedestrian and bicycle network. Crashes are also used as a critical criterion in the evaluation of pedestrian and bicycle treatments during the subsequent prioritization process. As expected, the most concentrated clusters of crashes resulting in serious injuries have occurred along the higher-volume roadways in the City of Naples. Crashes also tend to fall into one or more of the following categories:

- At an intersection or driveway with no traffic control elements, such as a stop sign or traffic signal;

- On streets that lead to City recreation spots and retail areas;
- At locations near commercial land uses along higher-speed arterial roadways with frequent curb cuts and side streets for motor-vehicle entry and exit.

Pedestrian Facility Design Guidelines

The Design Guidelines are intended to help City of Naples' Streets & Stormwater Department staff improve the walkability of roadways, and to provide consistency of pedestrian facility design treatments. They are not intended to impose inflexible standards and should be considered on roadways throughout the City where future improvements are planned, either as identified in the Naples Pedestrian and Bicycle Plan Update or elsewhere. It is noted that the Naples Code of Ordinances Chapter 50, Sections 50-156-180, Article VII-Sidewalks, should be consulted for sidewalk construction requirements. The examples presented in the Toolkit of Candidate Pedestrian Treatments should not be considered a substitute for more thorough evaluation by City staff or their design consultants. They are intended to complement other State and National design manuals and may require further analysis and judgement by licensed engineers based on local conditions and community concerns. These guidelines will also provide the elected officials with the type of information that they can use to assist in making the right decision for the community as a whole, and not for any specific special interest group. These other design manuals and standards that City of Naples officials should also reference include:

- FDOT Design Manual (2021);
- Manual of Uniform Traffic Control Devices MUTCD (2009);
- AASHTO Guide for the Planning, Design, and operations of Pedestrian Facilities (2004);
- FHWA Small Town and Rural Multimodal Networks Guide (2016).

Toolkit of Candidate Pedestrian Treatments—Linear

Sidewalks—Downtown

Sidewalks in Downtown Naples, and other neighborhood business districts, should be at a minimum of eight (8)feet wide. Wider sidewalks provide space for outdoor dining areas and for outdoor displays in front of retail businesses. A minimum five (5) footwide pedestrian through zone (PTZ) must be maintained for access and to meet ADA requirements.

Sidewalks—Neighborhoods

Sidewalks in residential neighborhoods and suburban/rural commercial areas should be at a minimum of five (5) feet wide.

Sidewalks—Parking Buffers

In all contexts where off-street parking is set at or near the edge of a parcel adjacent to a sidewalk, a landscaped buffer should be included. This provides a more welcoming environment for pedestrians and ensures that car bumpers do not encroach into the sidewalk space, which can hinder pedestrian flow and block ADA route access. A good example in Naples is shown in the top photo at right.

An example where vehicle parking along a sidewalk without a buffer can block pedestrian and ADA access resulting in a discontinuous pedestrian route is shown in the bottom photo at right.

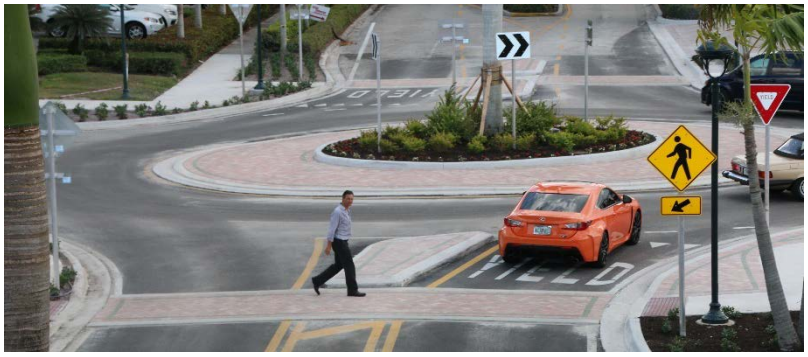
Paved Shoulders

Paved shoulders lie at the edge of roadways. Though not formally considered a pedestrian facility, in densely populated areas without room for standard sidewalks they can serve as a functional space for walking in the absence of a nearby sidewalk. Pedestrian warning signs can be included to alert motorists to watch for pedestrians. (Note that pedestrians should always walk against traffic.) According to FHWA's Proven Safety Countermeasures report, paved shoulders can reduce crashes involving pedestrians by 71%.

Toolkit of Candidate Pedestrian Treatments—Road Crossings

High-Visibility Crosswalks

High-visibility crosswalks should be striped at key pedestrian crossing locations and at signalized intersections. They should not strand pedestrians, however, and must lead to sidewalks on both sides. A piano key (aka "continental") or ladder style crossing enhances visibility of the crosswalk relative to a pair of perpendicular lines which are difficult for drivers to perceive. Crosswalks can be supplemented by R1-6 IN-STREET PEDESTRIAN CROSSING SIGNS or W11-2 PEDESTRIAN CROSSING SIGN assembly (at left in photo), which increase drivers' awareness of the crosswalk, especially at night.



Raised Crosswalks

Raised crosswalks (aka speed tables) place the pedestrian crossing at the same grade as the adjacent sidewalks and should incorporate the high-visibility striping described above. With painted chevrons on the ramp up, raised crosswalks create a visual cue that forces drivers to slow down on the approach and function similarly to a speed hump.

Curb Extensions

Curb extensions improve visibility for those waiting to cross a roadway and reduce the crossing distance for pedestrians. They also help to calm traffic by creating a visual "pinch point" in the roadway and reducing the typical turning radius for motor vehicles. They are most typically used with on-street parking lane.

Stormwater Curb Extensions

An additional benefit of curb extensions is their ability to incorporate rain gardens or other stormwater management facilities. Typically, the curb extension is lengthened with drainage openings within the curb which allows storm water to flow into a landscaped area. With a series of check dams and native plants, water is gradually recharged into the ground, rather than flowing directly into the local drainage system.

Median Refuge Island

Median refuge islands are protected spaces for pedestrians in the center of a street, especially critical for four (4) or six (6)-lane roads. They provide an opportunity for pedestrians to pause between directions of traffic, obviating the need to wait for traffic to stop in both directions before crossing a street. According to FHWA's Proven Safety Countermeasures report, they reduce crosswalk-related crashes involving pedestrians by 56%.

RRFB

Rectangular Rapid Flashing Beacons (RRFBs) are pedestrian-actuated warning beacons located at unsignalized intersections or mid-block crossings. They increase motorists' awareness of pedestrians and work well in conjunction with curb extensions and high-visibility crosswalks. According to FHWA's Proven Safety Countermeasures report, they reduce crosswalk-related crashes involving pedestrians by 69%.

Pedestrian Countdown Signal (w/LPI)

Pedestrian Countdown Signals indicate to how much time remains for a pedestrian to safely cross at a signalized intersection. With the countdown signal heads installed, a Lead Pedestrian Interval (LPI) can be incorporated easily into the signal cycle. The LPI provides a three (3) to five (5) second interval prior to a green light so that pedestrians can begin their crossing movement before turning motor vehicles. According to FHWA's Proven Safety Countermeasures report, countdown pedestrian heads signal along with the "hand" signal indication and leading pedestrian intervals (LPI) can reduce crosswalk-related crashes involving pedestrians by 60%.

Pedestrian Hybrid Beacon

Pedestrian Hybrid Beacons, sometimes called "HAWK signals", are designed to accommodate pedestrians (and bicyclists) crossing busy, multi-lane, and/or high-speed roadways at midblock crossing points. According to FHWA's Proven Safety Countermeasures report, they reduce crosswalk-related crashes involving pedestrians by 55% and 29% for all road users.

(photo: www.news-leader.com)

Selection Criteria for Pedestrian Treatments—Linear

Determining whether a new sidewalk should be established is an important consideration when trying to improve the pedestrian network in Naples. In consideration to American Association of State Highway and Transportation Officials (AASHTO) guidance, a number of context-sensitive elements should be carefully considered:

- **Land Use:** Does the roadway corridor include homes or commercial uses, and are they on one or both sides of the roadway? Does one side of the corridor remain in an undeveloped state?
- **Residential Density:** Will the sidewalk(s) serve low-density, single family homes, or multi-family housing (the latter may require ADA accessibility)?
- **Destinations:** Are there nearby destinations—especially schools—that might encourage pedestrians to cross the roadway twice for access if a sidewalk were only provided on one side? If this is the case, are there opportunities for unsignalized crossing locations in the area?
- **Topography:** Do cross slopes and/or drainage swales create challenges for sidewalk construction on one side versus the other?
- **Character:** What is the level of impact on community character (especially if there will be impact to mature street trees and other landscape features in the public right-of-way)?
- **Deliverability:** The following conditions will have an impact on the ability to provide a sidewalk on a street:
  - Environmental challenges and the need for regulatory permitting;
  - Property owners considerations along the street corridor;
  - Presence of physical obstacles;
  - Current or future development permits that can be leveraged for sidewalk construction.
- **Connectivity:** Each project and each community are unique. Given the historic and current land use in the City, additional factors unique to Naples were also considered including:
  - The grid pattern of streets on a north/south and east/west orientation;
  - Presence of extensive and significant landscaping and plantings along the edge of and within the roadway right-of-way.

All of the elements can and should be considered before a final determination is made to move forward with sidewalk recommendations found within the Naples Pedestrian and Bicycle Master Plan Update. When new sidewalks are planned, the guidance in the Toolkit included in this report will provide a high-level view of the design and character of the appropriate treatment for the new sidewalk.

Selection Criteria for Pedestrian Treatments—Road Crossings

Initial preliminary criteria for determination of pedestrian sidewalk projects included:

- Sidewalks on both sides of the roadway in commercial areas;
- Sidewalks on both sides of the roadway in residential areas if warranted by traffic conditions and supported by neighborhood associations;
- Sidewalks on one side of the roadway if warranted by traffic conditions and supported by neighborhood associations;
- Sidewalks to fill minor gaps in existing sidewalk segments considering support by neighborhood associations;
- Traffic calming (including additional pavement markings and/or signage) to facilitate a shared walk-in-the-street facility on low-speed low-volume residential roadways;
- Omitting sidewalks from designated historic residential areas.

The Toolkit of Pedestrian Candidate Treatments presented in this report illustrate the variety design treatments for use along roadways, at intersections, and at pedestrian crossing locations in Naples. Selection of the appropriate treatments is based on a variety of factors, including the land use context, street width, number of travel lanes, and the speed and volume of roadway traffic. As noted above, proper treatments have been shown to improve pedestrian safety as suggested in the FHWA Proven Safety Countermeasures reports from 2008 and 2017[1]. Other manuals and reports help planners and engineers select the best treatment for the context with the two (2) most relevant for road crossing treatment being:

- *Guidance to Improve Pedestrian and Bicyclist Safety at Intersections*, National Cooperative Highway Research Program (NCHRP), 2020[2];
- *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations*, Federal Highway Administration (FHWA), 2018[3].

As City staff seek the appropriate pedestrian facility for road crossings, guiding Principles should be considered to ensure that the selected facility helps to improve safety and accessibility for people walking and who use mobility devices. Per the 2020 NCHRP report, these Principles should be considered:

- Assume people want to walk and bike to their destination but frequently do not feel safe;
- Minimize and manage conflict points to the extent possible;

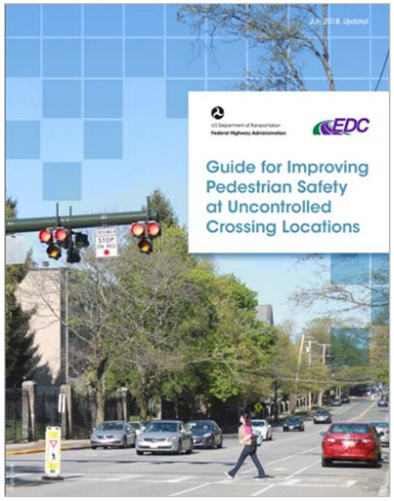
1 See: https://safety.fhwa.dot.gov/provencountermeasures/

2 See: http://www.trb.org/Main/Blurbs/180624.aspx

3 https://safety.fhwa.dot.gov/ped_bike/step/docs/STEP_Guide_for_Improving_Ped_Safety_at_Unsig_Loc_3-2018_07_17-508compliant.pdf

- Minimize travel time and delay with direct routes and shorter signal cycles at intersections;
- Minimize exposure to conflicts, especially time spent needing to cross a street;
- Control speeds and minimize speed differentials at conflict points;
- Prioritize comfort for pedestrians when designing roadway infrastructure;
- Provide a predictable and direct path and make it obvious with road markings and signs;
- Manage sight lines and visibility in relation to street furniture and landscaping;
- Ensure accessibility by designing to ADA and PROWAG standards.

With these Principles in mind, City staff can focus on 1) motor vehicle traffic volume, 2) traffic speeds, 3) the number of travel lanes, and 4) whether a raised median exists on a given roadway.



Options for determining the appropriate pedestrian facility treatment at road crossings are presented in the table on the following page. *Table 1* is from FHWA's 2018 *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* (aka the "STEP Guide"). The STEP Guide's table includes a matrix broken down by the four (4) roadway conditions including traffic volume, speed, number of lanes, and presence of a raised median. When determining the most appropriate treatment for a recommended pedestrian crossing in the Naples Pedestrian and Bicycle Master Plan Update, designers should note these four (4) roadway conditions and make a selection accordingly. Note that *Table 1* below should be considered guidance only; the professional judgment of a licensed transportation engineer is required before the pedestrian treatment is formally selected and implemented.

Table 1. Application of pedestrian crash countermeasures by roadway feature.

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	● 2 4 5 6	● 5 6 7 9	○ 5 6 ● 9	● 4 5 6	● 5 6 7 9	○ 5 6 ● 9	● 4 5 6 7 9	○ 5 6 7 9	○ 5 6 ●
3 lanes with raised median (1 lane in each direction)	● 2 3 4 5	● ● 5 7 9	○ ● 5 ● 9	○ 3 4 5 7 9	○ ● 5 ● 9	○ ● 5 ● 9	○ ● 4 5 7 9	○ ● 5 ● 9	○ ● 5 ●
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	● 2 3 4 5 6 7 9	● ● 5 6 7 9	○ ● 5 6 ●	○ 3 4 5 6 7 9	○ ● 5 6 ● 9	○ ● 5 6 ●	○ ● 4 5 6 7 9	○ ● 5 6 ●	○ ● 5 6 ●
4+ lanes with raised median (2 or more lanes in each direction)	● ● 5 7 8 9	● ● 5 7 8 9	○ ● 5 8 ●	○ 5 7 8 9	○ ● 5 ● 8 ●	○ ● 5 8 ●	○ ● 5 ● 7 8 9	○ ● 5 8 ●	○ ● 5 8 ●
4+ lanes w/o raised median (2 or more lanes in each direction)	● ● 5 6 7 8 9	○ ● 5 6 7 8 9	○ ● 5 6 8 ●	○ 5 6 7 8 9	○ ● 5 6 ● 8 ●	○ ● 5 6 8 ●	○ 5 6 7 8 9	○ ● 5 6 8 ●	○ ● 5 6 8 ●

Given the set of conditions in a cell,

\# Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.

● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.

○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
2 Raised crosswalk
3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
4 In-Street Pedestrian Crossing sign
5 Curb extension
6 Pedestrian refuge island
7 Rectangular Rapid-Flashing Beacon (RRFB)**
8 Road Diet
9 Pedestrian Hybrid Beacon (PHB)**

*Refer to Chapter 4, 'Using Table 1 and Table 2 to Select Countermeasures,' for more information about using multiple countermeasures.

**It should be noted that the PHB and RRFB are not both installed at the same crossing location.

Bicycle Facility Design Guidelines

The Bicycle Facility Design Guidelines are intended to help City of Naples' Streets & Stormwater staff create more bike-friendly roadways, and to provide consistency of bicycle facility design treatments. They are not intended to impose incompatible standards and should be considered on roadways throughout the City where future improvements are planned, either within the Naples Pedestrian and Bicycle Plan Update or in corridors identified by future evaluations. The examples presented in the Toolkit of Candidate Bicycle Treatments should not be considered a substitute for more evaluation by City staff or their design consultants in that phase of implementation. They are intended to complement other state and national design manuals and may require further detailed analysis and judgement by licensed engineers based on local conditions and community concerns.

The other design manuals and standards that City of Naples' officials should also reference include:

- FDOT *Design Manual (2021);*
- *Manual of Uniform Traffic Control Devices MUTCD (2009);*
- AASHTO *Guide for the Development of Bicycle Facilities, 4th Edition (2012);*
- Federal Highway Administration (FHWA) *Separated Bike Lane Planning and Design Guide (2015);*
- FHWA *Small Town and Rural Multimodal Networks Guide (2016).*

Toolkit of Candidate Bicycle Treatments

Marked Shared Lane

A marked shared lane is a general purpose travel lane marked with shared lane markings (SLM) used to encourage bicycle travel and proper bicyclist positioning within the lane. Under many conditions, SLMs may be placed in the middle of the lane to discourage unsafe passing by motor vehicles. SLM's are not recommended on roadways with posted speeds above 35 mph.

Shoulder Bikeway

Shoulder bikeways typically include at least a four (4)-foot wide paved shoulder and often include bicycle route signage. Four (4) feet is the preferred minimum width needed for bicyclists to ride with a modest level of comfort, depending on traffic speeds and volume. Signs alerting motorists to the presence of bicyclists may be used.

Standard Bicycle Lane

Bicycle lanes designate a lane for the exclusive use of bicycles via roadway pavement markings and signage. Reducing travel lane width to 10-11 feet provides space for standard 5-foot wide bicycle lanes. They may be added to roads with extra wide travel lanes or in replacement of a parking or a travel lane. The latter is typically part of a "road diet" project that is a viable option on 4-lane roads with <20,000 daily vehicle trips.

Bicycle Lane Adjacent to Parking

To preserve curb-side parking in commercial districts and urban neighborhoods, bicycle lanes frequently are striped next to parking. This creates conflict points as drivers enter the bicycle lane to parallel park. If space is available, a wide parking aisle or two (2)-foot buffer between the bicycle lane and the parking aisle decreases the likelihood that bicyclists will be struck by opened car doors of parked vehicles.

Buffered Bicycle Lane

Buffered bicycle lanes are conventional bicycle lanes paired with a striped buffer space separating the bicycle lane from the adjacent travel lane and/or adjacent parking lane. The buffers provide an enhanced visual separation from passing traffic and/or protection from the opening of car doors in the adjacent motor vehicle parking aisle. Buffers are especially critical on roadways with a high volume of truck traffic or in business districts with high parking turnover.

Street-Level Separated Bicycle Lane

These bikeways are at street-level and use a variety of methods for physical separation from passing traffic. A striped buffer plus a motor vehicle parking aisle, flexible delineator posts, or other vertical elements provide the physical separation from motor vehicle traffic. A separated bicycle lane treatment is one of the best ways to create an "all ages and abilities" bicycling environment on busy streets.

Street-Level Bi-Directional Separated Bicycle Lane

These bicycle facilities are physically separated and allow two (2)-way travel for bicyclists on one side of the street. Additional design considerations at driveway and side-street crossings are required to reduce conflicts. Bi-directional separated bicycle lanes work best on one-way roads and/or roads with long blocks and few curb cuts and also on roads with destinations mostly on one side of the street.

Sidewalk-Level Separated Bicycle Lane

Raised separated bicycle lanes are vertically separated from street-level travel lanes by a curb with an adjacent grass strip, landscaped buffer, or furniture zone. At intersections, the raised bicycle lane can either be dropped down to the street level or paired with a raised crosswalk.

Shared-Use Path/Sidepath

Whereas shared-use paths run within former rail corridors, along rivers, and through parks, sidepaths are located adjacent to and parallel with a roadway. Sidepaths can offer a high-quality experience for users of all ages and abilities compared to on-road facilities in heavy traffic environments. While more expensive than on-street bikeways, shared-use paths and sidepaths can help promote bicycle tourism and economic development. Additional design considerations at driveways and side street crossings are also needed for sidepaths to address conflicts.

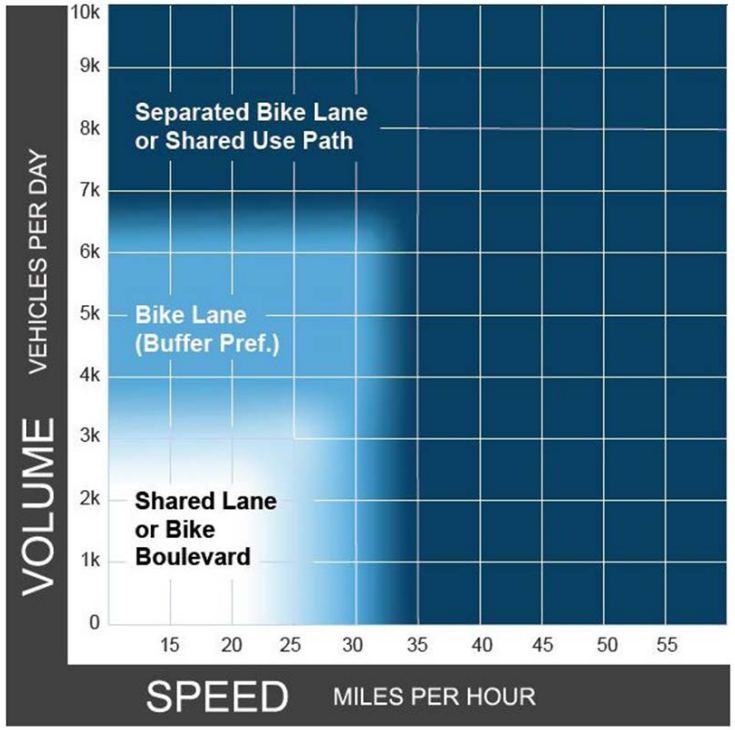
Selection Criteria for Bicycle Facility Selection

Selecting the best bikeway design for a given roadway can be challenging due to the range of factors that influence the comfort and safety of bicyclists. When motor vehicle traffic volumes are large and speed is high, there is a greater level of discomfort among people riding bicycles, especially those who are not experienced on-road riders. The bicyclist fatality rate increases significantly as vehicle speeds increase.

Figure 9 (right) from the 2019 FHWA *Bikeway Selection Guide* can be used as a general guide when considering a recommended bicycle facility in Naples that will be comfortable for the majority of bicyclists based on adjacent neighborhood context, motor vehicle speed and volume. To use the FHWA matrix, traffic volume and speed for the roadway should be identified and the bicycle facility option that best fits the two (2) factors should be considered. Other characteristics, such as the volume of truck and bus traffic, the presence of on-street parking, size/density of intersections, and land use—e.g. presence of a school or lots of commercial curb cuts—should also be considered. If any of these are significant factors, planners should err on the side of selecting a facility that creates a lower-stress environment and offers the most comfort for a wide range of bicyclists.

Figure 9: Preferred Bikeway Type for Urban, Urban Core, Suburban, and Rural Areas

(Assumes operating speeds are similar to posted speeds. Advisory bike lanes may be an option where traffic volume is under 3,000 ADT.)



Creating Dedicated Space

Compared with standard bicycle lanes, buffered bicycle lanes (BBLs) and separated bicycle lanes (SBLs) offer a more comfortable bicycling experience for users of all ages and abilities.

Separated bicycle lanes in particular bring a measure of predictability to urban streets and rural roads and can encourage new riders who may otherwise feel too exposed to motor vehicle traffic on standard, striped, bicycle lanes or roadway shoulders.

Shared-use paths, BBLs, and SBLs in urban locations provide the added benefit of helping to retain employers and workers. Bicycle facilities with a high degree of separation from traffic also benefit service-industry and other workers who may not have access to an automobile or where transit service is limited. Many such residents currently ride in Naples and elsewhere even without dedicated bicycle facilities, but improved conditions may encourage more frequent bicycle use or inspire residents to try bicycling. The downside is additional pavement is necessary so there is typically a reduction in greenspace. Most residential areas within the City of Naples are not good candidates for this option.

Both Sidewalk-level and Street-level Separated Bicycle Lanes can encourage bicycle riding for a more diverse group of bicyclists, including children and seniors.

Other Strategies Creating Bike Lanes and Low-Stress Bikeways

Though not included in the formal Toolkit of Bicycle Facility Treatments, other strategies are available to reallocate roadway space that provides facilities for bicyclists. In many cases, additional safety benefits are delivered for pedestrians as well.

- Narrowing Travel Lanes and Shoulders – Reducing the width of travel lanes to 10-11 feet and narrowing left-side shoulder width can create space to improve a bicycle facility from a standard or traditional bicycle lane to a buffered or separated facility.
- Roadway Repurposing: Lane repurposing projects (also called a road diet, lane reduction, or lane elimination) involve the reallocation of roadway space from underutilized travel lanes to further other goals, such as economic development, safety, or accommodation of non-motorized users.
- Reallocation of Curbside Lanes – Restricting parking to one side of the roadway can free up space for separated or buffered bicycle lanes. This typically has the best chance for success in commercial areas where most businesses have their own on-site parking, or in residential areas where homes include driveways.

Traffic Calming

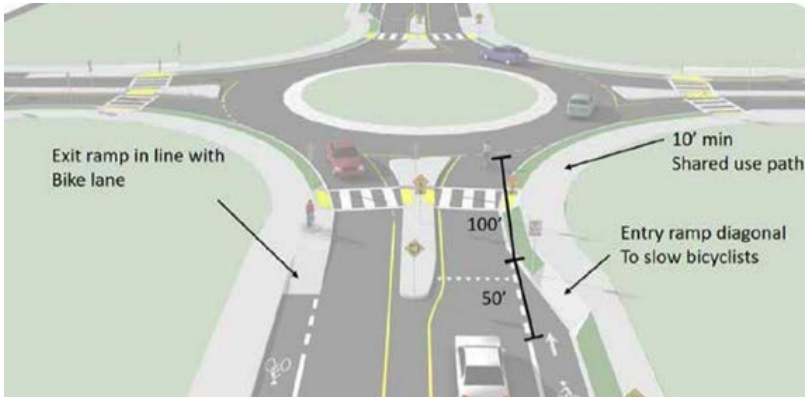
Traffic Calming-General Concepts

The public outreach for this project revealed widespread resident support for efforts to reduce vehicle speeds on neighborhood streets in the City of Naples. Non-traditional design features have proven effective to lower traffic speeds and discourage the use of neighborhood streets as shortcuts for commuter traffic. These features can inject misdirection and constraints on vehicle travel speeds. The basic concept is that neighborhood streets are no longer intended for the sole purpose of accommodating motor vehicle traffic. This approach is compatible with the concept of Livable Communities and Complete Streets. These design features include the following designs and applications.

Roundabouts

Bicycles in Roundabouts

At single-lane roundabouts, it is important to indicate to motorists, bicyclists, and pedestrians the right-of-way rules and the correct way for them to circulate, using appropriately-designed signage, pavement markings, and geometric design elements. For single-lane roundabouts with low vehicle speeds, bicyclists can be accommodated with either shared lane markings or a transition to an off-street path/wide sidewalk (see photo at right). An off-street path can be a sidewalk that has been widened to handle bicycle and pedestrian traffic .



There are several advantages to a modern-day roundabout at an intersection including:

- Lowering vehicular speeds, which allows more time for drivers to react to potential conflicts and reduces the risk of a collision with a pedestrian or bicyclist;
- Reducing conflict points, which reduces the potential for hazardous conflicts, in contrast to an intersection. Conflicting vehicles come from a more defined path at roundabouts, and thus pedestrians and bicyclists have fewer places to check for conflicting vehicles;
- Providing a higher level of efficiency for moving vehicles, pedestrians, and bicyclists through the intersection;
- Reducing vehicle traffic speeds (calms speeds along a corridor);
- Improving lines of sight on the approaches for all users;
- Pontentially reducing maintenance cost when used in lieu of a traffic signal;
- Improving aesthetics with decorative landscaping center islands, art, or other features;

› Calming traffic, rather than right-of-way assignment. Smaller versions of roundabouts may be effective on local collector streets as pictured below.

In the recent past, the City has constructed several roundabouts on City streets including the intersection of Banyan and Crayton, multiple intersections on 7th Avenue North (3rd Street, North, 7th Street North, 11th Street North, and 12th Street North), two (2) intersections on Central Avenue (10th Street North and 8th Street North), a few intersections on 3rd Avenue South (10th Street South, 8th St. South, 11th Street South, and 12th Street South), and the intersection of 15th Avenue South and 3rd Street South have proven successful in lowering traffic speeds and reducing the number of vehicle crashes.

Roundabouts built by private development projects include Naples Square and Bayfront.

In 2017, the City of Naples studied intersection improvements at signalized intersections with traffic signals hung from wires (as opposed to mounted on storm resistant mast arm poles). The study followed FDOT policy, where a roundabout alternative must be evaluated on intersection improvement projects.

The City study found the following crash history at the study locations pending community feedback:

Number of Crashes by Year

CRASH LOCATION	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Fleischmann & 10th St	0	1	2	0	2	0	0	0	2	1	0	0	0	0	8
Harbour & Crayton Rd	0	0	1	0	1	1	2	0	2	0	2	1	1	0	11
Mooring Line Dr & Crayton Rd	-	-	-	-	-	-	-	-	-	-	2	1	1	0	4
TOTAL	**0**	**1**	**3**	**0**	**3**	**1**	**2**	**0**	**4**	**1**	**4**	**2**	**2**	**0**	**23**

The following text, photographs, and recommendations edited from *Span-Wire Intersections Study by ADEAS-Q Transportation Engineering & Planning May 2017*.

Tenative -Harbour Drive & Crayton Road (FDOT Grant Funded In FY 23-24 $900,000 – Pending further discussions)

> *This intersection currently has left-turn lanes and a large right-turn flare in the northbound direction, which creates a large footprint and inefficient use of public right-of-way. Crosswalks have recently been provided for each approach, but there is no pedestrian signalization or signage.*
>
> *Bicycle activity was observed at the intersection and a growth of bicycle activity has been reported in recent years.*
>
> *A roundabout appears to be feasible without right-of-way impacts and without significant Impacts to public utilities. A roundabout may also provide more comfortable mobility for people walking and bicycling via reduced vehicle speeds through the intersection.*

Based on the 2017 Study findings, a roundabout was recommended for the intersection of Harbour Drive & Crayton Road, pending community feedback.

Tenative -Mooring Line Drive & Crayton Road (FDOT Grant Funded in FY 25-26 $900,000- Pending further discussions)

The Span-Wire Study found that operations at this intersection are of similar concern to Harbour Drive & Crayton Road. Crash data history provided by the City showed a total of four (4) crashes over a four (4) year period from 2017 to 2020.

> *A fifth span-wire intersection located at Mooring Line Drive & Crayton Road was previously evaluated and recommended for conversion to a roundabout by Alternative Street Design in a technical memorandum dated July 24, 2015.*

Fleischmann Boulevard & 10th Street

A roundabout was recommended within the report; however, City Council directed staff to keep a signalized intersection but mount it on mast arms in order to ensure mall traffic is not directed through the Lake Park neighborhood.

At the June 7, 2017 City Council Meeting, staff presented the final report and received input from City Council for moving forward. In the years since this meeting, the modern-day roundabouts that have been built within the City have generally become better received than when first built. In the transportation industry, modern-day roundabouts are known to be the safest, most effective intersection design available for today's multimodal transportation system.

Public input from the second Public Involvement meeting:

> City of Naples resident: *"I want you to know that when I was critical of the roundabout on some of the City streets, I was wrong. They really do make an improvement in the traffic flow and the bikers seem to adjust."*

Speed Humps/Tables

Speed humps are different than "speed bumps", commonly used in parking lots, which can be a hazard to all users on public streets. Even with a less abrupt geometry than speed bumps, humps are an effective tool to help control speeding on local neighborhood streets. Humps are typically used on residential streets with a speed limit of 25 mph or less. They should not be used on streets that also serve as bus transit routes, emergency response vehicle routes, on or near routes with steep grades or sharp curves, or on regional collector streets. Speed humps should include appropriate markings and warnings signs as per the MUTCD. Speed humps have worked well on Old Trail, South Golf Drive, and most recently on Anchor Rode Drive.

Raised Crosswalks

Raised crosswalks are raised above the level of the roadway to slow traffic, enhance crosswalk visibility, and make the crossing easier for pedestrians who may have difficulty stepping up and down curbs. They are essentially broad, flat-

topped speed humps. These crosswalks should include appropriate markings and warnings signs as per the MUTCD. Raised crosswalks have worked well on 5th Avenue South and at Baker Park.

Raised Intersections

Taking the speed hump concept to a higher level, raised intersections raise the roadway at the intersection, forming a type of "plateau" across the intersection, with a ramp on each approach. The plateau is at curb level and can be enhanced through the use of distinctive surfacing, such as pavement coloring, brickwork, or other pavements. In some cases, the distinction between roadway and sidewalk surfaces is blurred. If this is done, physical vertical elements, such as decorative bollards or planters, should be considered, restricting the area to which motor vehicles have access.

Reducing Street Area Where Motor Traffic is Given Priority

This category of traffic-calming techniques includes all those that reduce the area of the street designated exclusively for motor vehicle travel. Many of these techniques serve a dual purpose of calming traffic, while improving accommodations for pedestrians and bicyclists; thus, they overlap with items in the pedestrian and bicycle accommodation "toolbox". "Reclaimed" space is typically used for landscaping, pedestrian or bicycle amenities, and parking. These include:

- Medians;
- Curb extensions to shorten pedestrian crossing distances;
- Corner radii treatment to reduce vehicle turning speeds;
- Visually narrowing the width of the traffic lanes by installing bike lanes or multi-use shoulders if there are no sidewalks.

These traffic calming techniques have worked well on recent projects on Central Avenue and 8th Street.

City of Tampa Bike and Pedestrian Crossing

Accommodating Pedestrians and Bicyclists at Signalized Intersections

Pedestrians and Traffic Signals

Traffic signals assign the right-of-way to all road users-drivers, pedestrians, and bicyclists. On roadways with high volumes of motor vehicles, traffic signals can benefit pedestrians by interrupting the flow of motor vehicles, thus providing a gap to cross the roadway at intersections or at

mid-block locations. The primary goal of a signal installation is the overall safety of road users.

Traffic signals that are operating improperly can cause excessive delays for all road users - pedestrians and motor vehicles, which can result in signal disobedience and an increase in crashes. For example, leading left turn arrow operations for vehicles are often ignored by pedestrians such that they cross against a DO NOT WALK signal indication. Provision of protected pedestrian phases (such as NO TURN ON RED), while minimizing the conflict between crossing pedestrians and turning vehicles, increase the overall length of the signal phases. This can cause a pedestrian to perceive this as an excessive delay, such that they will not wait for the pedestrian phase and cross against tuning traffic.

Measures that can be used to supplement the traffic signal operation for pedestrians include:

- Consider implementing a NO TURN ON RED phase that prohibits vehicle right turns on a red signal indication. While this would eliminate the conflict between turning vehicles and crossing pedestrians, additional time may be needed to clear the turning vehicles. As noted above, this may lead to an increase in the overall signal cycle length, requiring all users to wait longer for their specific phase.
- Consider implementing leading pedestrian intervals (LPI) that prohibits vehicle turns on red during the initial portion of a typically concurrent pedestrian phase. This would allow waiting pedestrians to cross the roadway free of potential conflicts with turning vehicles.
- Installing warning signs on the roadway approaches to warn road users of an intersection and/or pedestrian crossing.
- Relocating stop lines or on-street parking farther from marked crosswalks to improve the sight distance at the intersection or approach to a crosswalk at a mid-block location.
- Modifying the intersection geometry or adding medians/refuge islands, channelizing islands or curb bump outs to reduce vehicle speeds, providing pedestrians a refuge and reduce long crossing distances.

The *ITE Traffic Control Devices Handbook 2nd Edition* notes regarding traffic signals for pedestrians…*"although these measures have been found to have a beneficial effect on reducing pedestrian crash frequency and improving safety, their use should be supplemented with appropriate enforcement and associated educational program(s) as feasible."*

These measures have been included in the recommended project lists for several City roadways and intersections. As the City expands their pedestrian and bicycle network, it is recommended that the City monitor the operation of their signalized intersections to identify any trends that indicate an increase in pedestrian and/or bicycle crashes.

Bicyclists and Traffic Signals

Bicyclists are typically allowed to use traffic signals in the same way as a pedestrian, which many less confident or younger bicyclists do. More confident bicyclists are allowed to proceed through a signalized intersection in compliance with the signal indications and in the same manner as a motor vehicle. The needs of bicyclists may require additional considerations in the signal design and operation, especially at intersections with high volumes of turning vehicles. These considerations may include:

- **Detection:** Detection at a traffic signal is of critical importance. Failure to detect the bicyclist and provide the proper signal indication (such as failure to provide a green signal indication) can encourage the bicyclists to disobey the signal, potentially leading to safety and operational problems. The choice of active detection (requires the bicyclist to complete an action,i.e. push a button) or passive detection (no specific bicyclist action required) may be provided depending on the site conditions. Signs and markings are provided in the MUTCD to inform the bicyclist of any actions required or to assist the bicyclist to proper lane position for detection. Bicycle detection has been installed at the Central Avenue/Goodlette-Frank Road signal. FDOT has allocated funding for installations at other locations in the City of Naples.
- **Signal Phase Changes to Accommodate Bicyclists:** Typically, bicyclists traverse an intersection during the same signal phase as motor vehicle traffic. For signals located on bikeways, the MUTCD Section 9D.02 requires agencies to adjust signal timing as needed to accommodate bicyclists. The ITE Traffic Control Devices Handbook, 2nd Edition, notes, "The greatest risk to bicyclists crossing an intersection is during the signal phase change intervals. Signal timing at intersections should provide adequate time for bicyclists who enter the intersection legally at the end of the green phase to complete their crossing before conflicting traffic receives a green indication."
- **Reducing Speeds:** Installing traffic calming measures described above or other measures, such as radar speed feedback signs to encourage reduced speeds on the approaches to the intersection or cross locations.
- **High Volume Intersections:** At intersections with high volumes of vehicles turning across a straight through bicycle movement, separation of bicycle movements from conflicting turning vehicle movements should be evaluated. The MassDOT Separated Bike Lane Planning and Design Guide 2015 provides some guidance on the thresholds of separation of those movements. Exclusive vehicle turn phases, protected bicycle phases or the use of bicycles signal faces are options that may be used to minimize the potential for bicycle and vehicle conflicts.

As the City expands the pedestrian and bicycle network, it is recommended that the City monitor the operation of their signalized intersections to identify any trends that indicate an increase in pedestrian and/or bicycle crashes.

Separated Bike Lane Operation	Motor Vehicles per Hour Turning across SBL		
	Right Turn	Left Turn across One Lane	Left Turn across Two Lanes
One-way	150	100	50
Two-way	100	50	0

EXHIBIT 6A: Considerations for Time-separated Bicycle Movements

The Five E's

Engineering, Encouragement, Education, Enforcement, and Evaluation of Policies And Programs

The City of Naples' commitment to improving walking and bicycling in the community is expressed through the efforts of updating the prior Pedestrian and Bicycle Master Plan, as well as through existing policies and programs that support access and safety for pedestrians and bicyclists. As part of the process for developing the plan, VHB reviewed existing policies and programs in the areas of Engineering, Encouragement, Education, Enforcement, and Evaluation, frequently called "the five E's" in pedestrian/bicycle planning. Where gaps exist in the five E's, VHB developed a series of recommendations in each category. Besides gaps in existing policies and programs, the team identified potential additions or improvements. The tables below contain the policy and program recommendations for the City—along with key stakeholders and regional partners—to consider in the short, medium, and long term. All are consistent with the City of Naples' Vision goals, including:

- **OUR PLACE—Preserve Small Town Character and Culture.** We believe in maintaining and embracing the features that make Naples special: a town of residential neighborhoods, waterfronts, green spaces, boutique shopping areas, thriving arts, diverse special events, and friendly people.
- **OUR NATURE—Environmental Sensitivity.** We believe in the stewardship of our land and protection of our beaches, bays, river, estuaries, and lakes through education and investment that supports clean water, clean technology, and resilient coastlines.
- **OUR EXPERIENCE—Extraordinary Quality of Life for Residents.** We value keeping our community safe, clean, healthy, and balanced with opportunities for living, working, enrichment, and play.
- **OUR ECONOMY—Economic Health and Vitality.** We value the businesses and health care industry that enhance our small-town character as amenities that contribute to our collective success and well-being.

The Five "E's"

- **Engineering:** Creating safe and connected on-street and off-road infrastructure for walking and bicycling in Naples
- **Encouragement:** Fostering a culture that supports and encourages walking and bicycling to work or school, for recreation, and to do errands
- **Education:** Providing people with knowledge about legal and safe walking and bicycling, and building confidence
- **Enforcement:** Encouraging safe and responsible behaviors on the road and building respect among all users
- **Evaluation:** Monitoring efforts to increase walking and bicycling in Naples and planning for the future

Engineering Policies & Programs

Program	Need	Recommendation	Leadership
Maintenance of Bicycle Facilities	If not established already, a strong policy about maintaining bike lanes and shared use paths to minimize debris and glass, and to promptly repair pavement defects and other road hazards and replace signs and markings when needed.	Ensure maintenance of bike and pedestrian facilities in enshrined in public works policy, and to consider citizen request.	Naples Streets & Stormwater Dept.
Construction-related impacts to pedestrian and bicycle facilities	On occasion, street maintenance or construction operations can create hazardous conditions and/or block access for pedestrians, bicyclists, and people with disabilities.	Consider adopting a City policy that details requirements for maintaining safe access through construction zones for people walking, bicycling, or with disabilities.	Naples Streets & Stormwater Dept.
Mobile App for Reporting Maintenance Issues	Residents don't always have a convenient method to report problems within the public right of way that impact people walking, bicycling and those with disabilities.	Development of a mobile app could allow residents to report damaged sidewalks, pavement defects in bike lanes, and other potential hazards so that the City can track work orders and maintenance requests to Public Works.	Naples Streets & Stormwater Dept.,Naples TS Dept., and Risk Management

Encouragement Policies & Programs

Program	Need	Recommendation	Leadership
Online promotion of walking and bicycling	Promoting Naples as a City welcoming to people who choose to walk or bike for transportation and recreation can encourage more residents and visitors to avoid driving for some trips.	Provide more information related to walking and bicycling on the City of Naples web site (e.g. on the Parks and Rec page) and other sites such as paradisecoast.com or visitflorida.com.	Naples Streets & Stormwater Dept., City Manager's Communication Division, NPC, and Blue Zones Initiative

Program	Need	Recommendation	Leadership
Roadway User Courtesy Program	A better understanding of the needs of vulnerable road users, such as pedestrians and bicyclists. Enhanced courtesy between those driving, walking, and bicycling is intended to improve safety for all.	Perhaps called "Naples Nice", the campaign can be modeled after the "Newport Waves" program in Newport RI. (NOTE: the Newport Waves program is propriety protected). The successful effort included a 1 min video which featured local personalities, street banners, and posters in storefront windows. See: https://bikenewportri.org/introducing-newport-waves/	Greater Naples Chamber of Commerce w/leadership from the Mayor's office
Citywide Bike Map	Community inputs show that many people interested in bicycling are concerned about traffic levels and speeds and avoid riding on a higher volume roadway.	A map showing the most bike friendly routes in Naples will increase confidence levels for less experienced bicyclists and can highlight destinations such as parks and bike shops.	Naples Pathway Coalition with Naples Streets & Stormwater Dept.
Citywide Bike Loop (Tenative)	Potentially designate a loop route within City limits on designated roadways via wayfinding signage.	Further discuss a designated bicycle loop within City limits on designated roadways via wayfinding signage as per the City Wayfinding Plan.	Naples Streets & Stormwater Dept.
Walking or Bicycle Commuting for City Employees	While City staff are provided parking at no cost, the number of City employees using transit, or walking or bicycling to work is low.	Provide incentives to City staff to encourage active transportation; this can come in the form of financial incentives—e.g. Portland OR provides $25/month stipend for those who commit to walk or bike 4 days/week—and facilities, such as secure indoor bike parking and shower/locker facilities where possible.	City of Naples Human Resources and Naples Streets & Stormwater Dept.

Program	Need	Recommendation	Leadership
Artistic Bike Racks	Bike racks not only satisfy demand for bike parking but can strengthen the City's brand.	New, creatively-designed bike racks should be well placed and help to further Naples brand.	Naples Streets & Stormwater Dept. and Greater Naples Chamber of Commerce
Open Streets Events	Streets primarily used for movement and storage of motor vehicles limit their use as a public space for social interaction.	Pilot a car-free, "open streets" event on a major roadway or roadways on a weekend day to start to promote walking, bicycling and other activities.	Naples Streets & Stormwater Dept. and Community Services Dept.

Education Policies & Programs

Program	Need	Recommendation	Leadership
Children walk and bike safety program	Elementary and middle school children do not always have a full understanding of traffic safety and laws for walking and bicycling.	Continue to work with FLDOT's Safe Routes to School Program—especially utilizing materials from the Florida SRTS Tool Kit—to encourage participation at more schools with an emphasis on walk/bike safety courses.	Naples Police
Free Bike Safety Equipment	Many adults and children do not have helmets, lights, and other equipment on their bicycles.	Promote free giveaways of bicycle helmets, lights, safety vests, ankle straps and other items at community events, beaches, at schools and/or at public housing sites.	Naples Police and local advocates
Bicycle Maintenance Courses for Adults	Even teenagers and adults who feel comfortable riding a bike in a variety of context do not always know proper maintenance skills.	Well-designed bike maintenance classes can build additional confidence and enthusiasm for bicycling for transportation on a regular basis.	Community Traffic Safety Team and local advocates

Program	Need	Recommendation	Leadership
Walk/Bike/Driver Safety Education Materials	Many motorists, bicyclists, and pedestrian lack information about safely interacting with other road users and current traffic laws.	Public outreach including mailings, fliers, PSAs, and brochures will educate all roadway users about safe interactions; grants are frequently available for such materials.	Naples Planning Dept.
Walk and Bike Education Materials for Seniors	As people age, they may lose some of the skills needed to walk and especially bicycle safely in an urban environment.	Special outreach materials for seniors can not only promote safety but encourage them to try a bicycle or tricycle for transportation or recreation.	Naples Senior Center, Housing Authority
Directions to Destinations in Naples	Typically, online and/or brochure directions to various destinations and businesses will only provide driving directions.	Encourage businesses and public facilities to consider providing directions via walking, bicycling and transit for those needing to, or wishing to, arrive by mode other than automobile. Incorporate the recommendations from the City of Naples Wayfinding Signage Design Intent Documents 2017.	Naples Planning Dept. andChamber of Commerce

Enforcement Policies & Programs

Program	Need	Recommendation	Leadership
Crosswalk Compliance	People driving frequently fail to yield to pedestrians and crosswalks.	Additional enforcement efforts[4] , motorist education, and decoy operations could be considered to enhance compliance.	Naples Police Dept.
Safe Routes to School Enforcement	People driving near schools—sometimes parents—sometimes speed or otherwise do not drive safely when children are present.	See above.	Naples Police Dept.
Police Education	Police officers may not have the latest information on laws and safety issues relating to bicyclists.	Use available training resources in Florida or nationally to help train local police.	Naples Police Dept.
Truck Safety	Large trucks can present a hazard to pedestrians and bicyclists, sometimes threatening to pull bicyclists under their wheels.	Establish a City policy requiring side guards, convex mirrors, and cross-over mirrors on large truck owned and operated by the City.	Naples Streets & Stormwater Dept. and Fire Dept.
Speed Feedback Signs	Speeding traffic can compromise the quality-of-life in some neighborhoods and leads to more dangerous conditions for people walking and bicycling.	Digital traffic speed feedback signs provide a visual reminder for drivers to slow down and should be installed on streets where speeding is prevalent or near schools and playgrounds.	Naples Streets & Stormwater Dept. and Police Dept.
Traffic Law Enforcement	Community input indicates a strong community support for enhanced enforcement of traffic laws for all road users-motorized and non-motorized alike.	Increase Naples Police Department budget to increase traffic enforcement efforts in conjunction with public education and encouragement campaigns.	Naples Police Dept.
Intersection Lines of Sight	Community input indicates a strong desire for clear lines of sight to protect pedestrians and bicyclists from moving vehicles at intersections.	Streets & Stormwater Department to increase ROW inspection frequency and enforcement for line of sight as it relates to landscaping and encroachments within the public right-of-way.	Naples Streets & Stormwater Dept.

37 **Guidelines for Pedestrian Bicycle Treatments or facilities**

Evaluation Policies & Programs

Program	Need	Recommendation	Leadership
League of American Bicyclists (LAB) Bicycle Friendly Community (BFC) Program	Currently, the City of Naples has been designated as a Bronze-level BFC by the LAB. Aspiring to reach the next level (Silver) can provide the organizing policy for a wide range of improvements that will require evaluation to present to the LAB in the next certification round.	City staff to develop a checklist of projects and programs aimed to achieve silver-level BFC designation in 2-3 years.	Naples Streets & Stormwater Dept.
Pedestrian and Bicycle Data	Compared with motor vehicle counts, there is very little data related to the number of people walking and bicycling to work, for recreation, or for errands.	Develop a regularly-scheduled, pedestrian and bicycle count program at a diverse collection of sites in Naples.	Naples Streets & Stormwater Dept.

Data Collection

Data and information on existing conditions was collected including the following:

- Geographic Information System (GIS) base map aerial photography;
- Current and future land use information;
- Neighborhood association boundary locations;
- Planned and programmed improvements as identified by City staff;
- Available traffic count data;
- Additional pedestrian and bicycle volume counts at critical intersections to gauge levels of current pedestrian and bicycle activity;
- Pedestrian and bicycle crash data plotted on the bicycle network map;
- Location of existing pedestrian facilities/sidewalks;
- Existing bicycle facilities network, such as marked shared lanes (sharrows), bike lanes, and shared-use paths/trails.

The data was compiled on GIS based maps. Existing conditions were verified in the field by the City Streets and Stormwater Department's Streets and Traffic Division staff and corrections made.

To gauge the current level of pedestrian and bicycle activity, additional pedestrian and bicycle traffic counts were obtained at critical locations during "spring break" week of March 22, 2021 for both a.m. and p.m. peak periods for both a weekday (Thursday) and weekend day (Saturday). Diagrams of the specific locations and associated pedestrian and bicycle volumes are included in the Appendix.

Previous studies including the City's *Downtown Naples Mobility & Connectivity Study* and the *Span-Wire Intersections*

Study by ADEAS-Q Transportation Engineering & Planning May 2017 were reviewed for pedestrian, bicycle, and traffic calming recommendations applicable to the scope of the Plan Update. Recommendations consistent with the goals of the Pedestrian and Bicycle Plan Update were incorporated into the recommended projects list.

Using these maps, the Plan Update team was able to identify the locations of "gaps" in the pedestrian and bicycle networks, such as missing sections of sidewalk and critical missing segments in the bicycle facility network. Maps of both pedestrian network and bicycle network are included in the Appendix, broken down by neighborhood association district boundary.

Public Outreach

A public outreach program was initiated during the initial stages of the project and included the following efforts:

Public Workshop #1

The project team composed, scheduled, organized, and conducted an in-person public workshop (PW#1) on February 4, 2021 at the River Park Community Center from 4:00 pm to 7:00 pm. Graphic boards of the existing conditions base maps where presented along with background information on Plan Update tasks, consistency of the Plan Update with the elements of the Naples Vision goals, current best practices for accommodating pedestrians and bicyclists, and the Plan Update schedule. Copies of the existing conditions maps were available for attendees to mark up with comments on specific locations of concern and/or suggested improvements. A project survey form was available for attendees to provide general background information on walking and biking in Naples, as well as the opportunity to provide support of or opposition to changes to specific roadways. To accommodate residents that were not able to attend the in-person workshop, a virtual public workshop meeting room with the same graphics and information in a virtual graphic format was developed and made available through the City website (click here for link to City website): https://www.naplesgov.com/streetsstormwater/page/city-naples-2021-bicycle-pedestrian-master-plan-update).

The survey form was also available for residents to download, fill out, and return to the project team via hard copy mail-in format or email of a pdf. A blank copy of this "paper" survey form is included in the Appendix to this Report. The total number of attendees was approximately 30 persons and the number of survey forms received was approximately 130.

At that time, the project team agreed that a higher level of response was needed to provide a greater level of confidence that the survey findings were a reliable representation of City resident input. To supplement the input received from PW#1 and the survey forms from the virtual meeting room, an online digital survey was developed to engage City residents and solicit feedback necessary to the planning effort. The surveys were distributed through multiple channels, including email, direct mail, print media, social media, and the City website. A blank copy of the online survey is included in the Appendix to this Report. The surveys received approximately 2,300 responses over the nine (9) week response period between February 4, 2021 and April 8, 2021. The survey results came into question by the public. However, the prime focus for the City was on the handwritten comments from the survey efforts.

Summary of Survey Public Workshop #1

The intent of the survey was to gauge City residents' general perception of the status of walking and biking in the City and their opinions on how the comfort and convenience of their walking and biking experiences could be improved. The survey, however, was called into question when the survey questions, the methodology, and results were discussed. The project consultant further discredited the suvey effort by indicating it was flawed. Key summary information from the survey effort includes:

- The majority of respondents provided their zip code. Approximately 85% shared a zip code within City limits;
- The most popular places for City residents to walk were neighborhood streets, beaches, and City parks;
- The most popular places for City residents to bike were neighborhood streets, parks, and to/from shopping;
- The five (5) most popular transportation characteristics conductive to the small-town character, culture, and quality of life in the City of Naples were:
  - Separation of pedestrians, bicyclists, and vehicles within the public right-of-ways;
  - More off-road pathways;
  - Connectivity between paths and sidewalks;
  - More green space;
  - Slower speeds/traffic calming.

While public input is critical to the decision-making process for prioritization of proposed improvements, the survey was not intended to be the primary factor in selection of recommended pedestrian and bicycle improvements.

Public Workshop #2

A second workshop was held on April 15, 2021, again at the River Park Community Center. Graphic boards of the existing conditions base maps were presented, along with background information on Plan Update tasks, consistency of the Plan Update with the elements of the Naples Vision goals, current best practices for accommodating pedestrians and bicyclists, and the Plan Update schedule. Additionally, a brief summary of public input received at PW#1 was presented. To accommodate residents that were not able to attend the in-person workshop, a virtual public workshop meeting room with the same graphics and information in a virtual graphic format was developed and made available through the City website.

Summary of Presidents Council Meetings

See Appendix I

Public Workshop #3

A third workshop was held on March 31, 2022, at the River Park Community Center. Graphic boards of the priority lists and maps were available for the public. Additional graphic boards were included for the roundabout projects and the proposed Bike Loop Map. Input on the final priority lists, bike loop connection on Fleischmann and the roundabouts was sought through surveys available at the meeting and later through the Speak Up Naples website. The survey forms were detailed for each neighborhood and a citywide option was also available.

Recommendations

A project list of preliminary recommendations for pedestrian, bicycle, and traffic calming improvements was developed and depicted on a projects map. Recommendations were assembled for both corridor/linear improvements (such as sidewalks, roadway traffic calming, sharrow markings) or intersection/spot improvements (such as enhanced pedestrian crossings or speed humps). Attributes were attached to each recommendation including:

- Improvement type;
- Limits or location;
- Improvement description;
- Community feedback if any;
- Other community efforts, comments, or previous direction from City officials;
- Planning and engineering justification for the improvements;
- Construction cost information.

The original list of proposed improvements was reviewed by the Presidents Council and neighborhood associations. The modified list of proposed improvements was developed based on concurrence of the specific projects by the neighborhood associations. Project and priority recommendations were obtained from several of the neighborhood associations. The final step was obtaining public feedback from the residents. Input was collected and received just prior to the May City Council Workshop deadline.

The update to the master plan creates a clear path for working towards community projects and programs that improve safety and mobility. It also advances the City's position in receiving grant funding for projects from agencies such as the Florida Department of Transportation.

At the May 20th City Council workshop, staff presented the draft update to the master plan and received comments from City Council and the public. In response to those comments, the Department recognized a need to continue further discussions on a few key topics. In order to continue progress on the Bike and Pedestrian Plan Update, the Department has omitted projects from the funding list until further evaluation is complete. These include the following:

1. Roundabout at Mooring Line Dr. and Crayton Rd.
2. Roundabout at Harbour Dr. and Crayton Rd.
3. City of Naples Bike Loop

The proposed list has been adjusted to consider the projected fiscal year for City projects within the next five years. The Department has designated funds for ADA infrastructure projects that may be necessary and annual funding alloted per fiscal year for a variety of bike and pedestrian projects with Department funds. There are potential other projects that the City may seek grant funds to complete. County and state projects identified may be feasible through other sources.

Appendix A: Existing Sidewalk Network Maps

Appendix B: Existing Bike Network with Bike & Pedestrian Crash Maps

Appendix C: Pedestrian and Bike Count Location Diagrams

Appendix D: Project Recommendations Matrix

Appendix E: Resolution of the South Gordon Drive Neighborhood Association, Inc.

Appendix F: 2013 Ped-Bike Plan Completed Projects List

Appendix G: Home Owners Association Meetings Summary

Appendix H: Community Feedback

Appendix I: Bicycle Loop