Miami-Dade Transportation Planning Organization

Temporary Lanes, Lasting Impact:

A Framework for Youth-Focused Active Transportation in Miami-Dade

August 2025

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INTRODUCTION

1. Introduction

The Miami-Dade Transportation Planning Organization (TPO) Urban Mobility Task Force and Non-Urban Core Task Force were created to focus on addressing bicycle and pedestrian mobility challenges in Miami-Dade County. As a result, the Strategic Miami Area Rapid Transit (SMART) Street Transportation Enhancement Program (STEP) was created to facilitate interagency coordination, innovation, and accelerate the implementation of pedestrian and bicycle improvement projects that increase connectivity and enhance safety.

Aligning with the Safe System Approach principle of recognizing human vulnerability and following the Federal Highway Administration (FHWA)'s recommendation of providing dedicated facilities for cyclists to mitigate or prevent interactions, conflicts, or crashes between cyclists and motor vehicles, the Miami-Dade TPO's Governing Board passed Resolution #30-2023[1] on September 28, 2023. Based on crash statistics in Miami Dade County, this resolution directs the Miami-Dade TPO's Executive Director or her designee to coordinate with the appropriate agencies to identify public Elementary, K-8, and Middle School facilities throughout Miami-Dade County for the implementation of protected bicycle lane pilot programs, and to develop a framework for the implementation of such programs.

This study then seeks to gain a comprehensive understanding of the effectiveness and impacts of these programs, helping inform future decision-making and urban planning efforts, while creating a set of guidelines or steps to replicate this effort throughout Miami-Dade County.

[1] Miami-Dade TPO Resolution #30-2023

2

EXISTING CONDITIONS IN MIAMI-DADE

2. Existing Conditions in Miami-Dade

Walking and biking to school can offer numerous benefits, such as improved physical health, reduced traffic congestion, and lower emissions. However, in Miami-Dade County, like any other urban area, there are two major risks associated with these modes of transportation, traffic crashes and lack of protective infrastructure, which are depicted as follows.

2.1 Traffic Crashes

Miami-Dade County has a high population density and congested streets, which increases the risk of accidents involving pedestrians and cyclists. However, these crashes occur disproportionately countywide due to a combination of factors, including the region's unique characteristics and various contributing elements such as:

High Population Density: Miami-Dade County is one of the most populous counties in the United States, and its urban areas can become heavily congested with both vehicular and pedestrian traffic. The sheer number of people sharing the roads increases the likelihood of collisions.
Car-Centric Infrastructure: Miami-Dade County's infrastructure is largely designed to accommodate motor vehicles, and this can often lead to a lack of safe spaces for pedestrians and cyclists. Insufficient sidewalks, crosswalks, and protected bike lanes can make it challenging for non-motorized road users to navigate safely.
Distracted Driving: Distracted driving is a significant issue across the nation, and Miami-Dade County is no exception. Drivers using mobile phones or engaging in other distractions while behind the wheel may not notice pedestrians or cyclists, resulting in collisions.
Limited Public Transportation: In some areas of the county, public transportation options may be limited, leading more people rely on walking or biking as their primary mode of transportation. This increased pedestrian and cyclist presence can elevate the risk of collisions.

In the course of 2023, there were 3,594 crashes, 319 serious injuries, and 120 fatalities in Miami-Dade County related to bicyclists and pedestrians alone per Signal4 Analytics[2]. According to these statistics, 14 serious injuries (or 4.39%) and 3 fatalities (or 2.50%) have been children under the age of 15 as depicted in **Table 2-1** and seen in **Figure 2-1** and **Figure 2-2**.

Table 2- 1: Total Serious Injuries and Fatalities per Age Group in Miami-Dade County in 2023

Age	Serious Injuries	Fatalities
Under 15	14	3
15-19	24	2
20-24	27	3
25-34	40	13
35-44	49	12
45-54	37	11
55-64	43	23
Over 65	52	35

Source: Signal4 Analytics

[2] Signal 4 Analytics is developed and hosted for the State of Florida at the University of Florida.

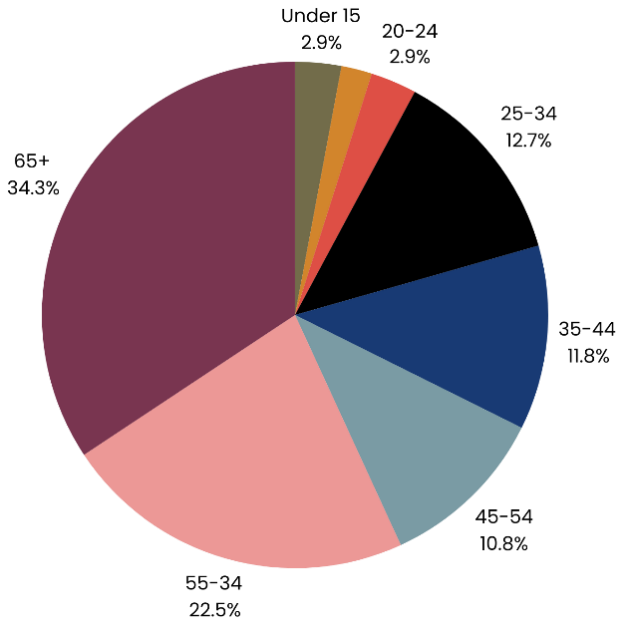


Figure 2- 1: Percentage Distribution of Total Fatalities per Age Group in Miami-Dade County in 2023

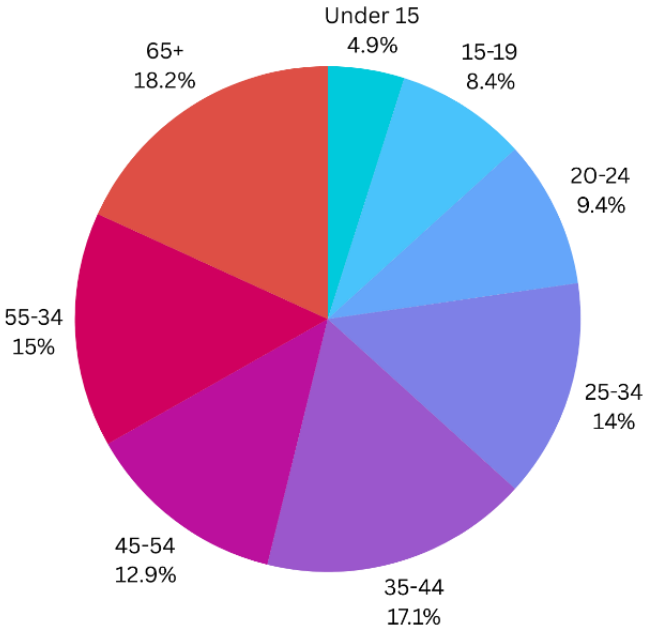
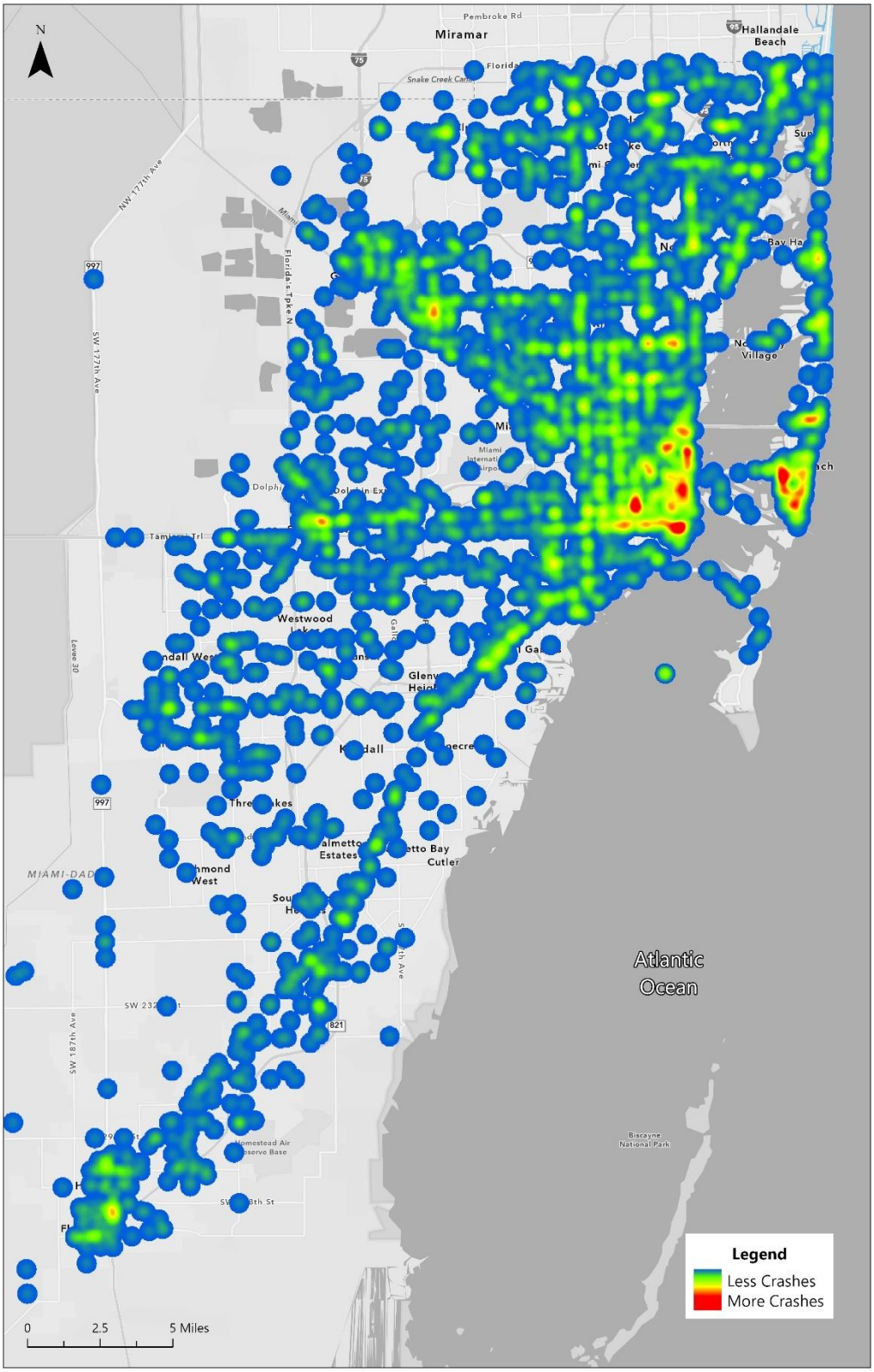


Figure 2- 2*: Percentage Distribution of Total Serious Injuries per Age Group in Miami-Dade County in 2023*

A distribution of crashes countywide can be seen on **Map 2-1**.



Map 2- 1: Distribution of Pedestrian and Bicycle Crashes in Miami-Dade County in 2023.

Serious injuries and fatalities recorded resulting from traffic crashes through recent years are depicted in **Figure 2-3** and **Figure 2-4**. Since 2012, the highest recorded number of fatalities took place in 2018 with 128 cases, followed by 2023 with 120, 2021 with 113, and 2015 with 112 fatalities involving bicyclists and pedestrians. This data suggests that fatalities have been fluctuating, up and down, since the database started to be recorded in the Signal 4 Analytics' Dashboard in 2012.

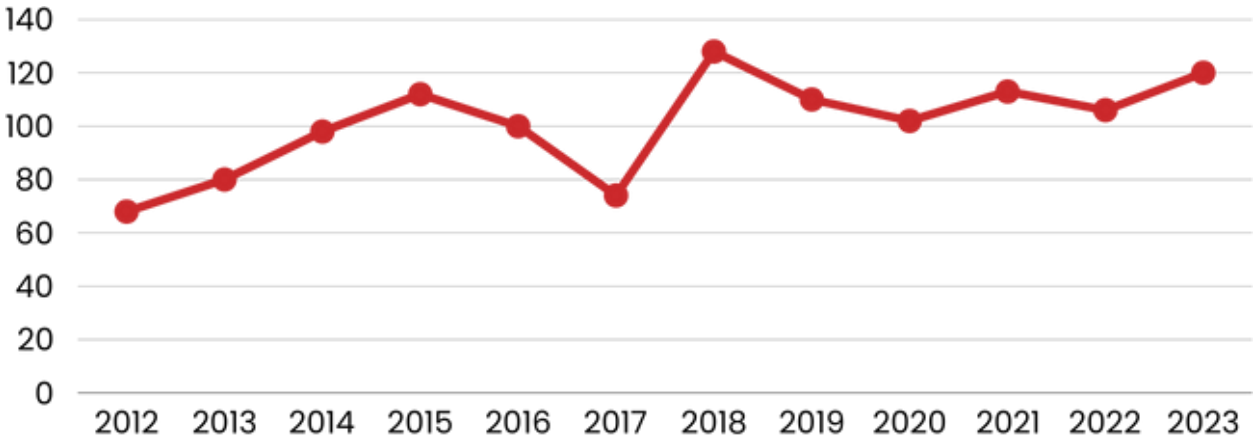


Figure 2- 3: Fatalities Involving Bicyclists and Pedestrians in Miami-Dade County between 2012 and 2023

Regarding serious injuries, since 2012, the highest recorded number of cases took place in 2015 with 390 cases, followed by 2012 with 361, 2013 with 359, and 2014 with 345 serious injuries involving bicyclists and pedestrians. While cases have decreased since 2018 from their highest peak, serious injuries increased again in 2022 and 2023, reaching 281 and 319 cases reported respectively.

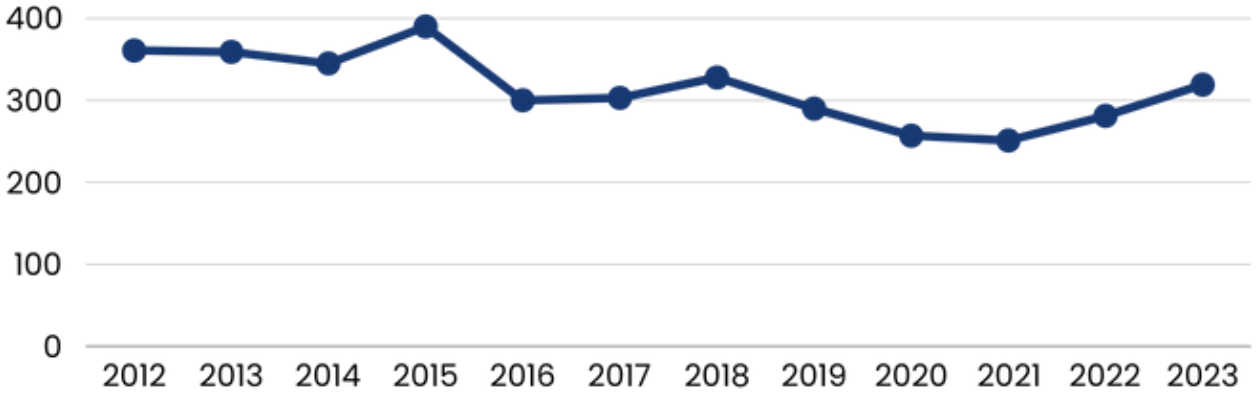


Figure 2- 4: Serious Injuries Involving Bicyclists and Pedestrians in Miami-Dade County between 2012 and 2023

2.2 Lack of Infrastructure

In some areas of Miami-Dade County, there may be inadequate infrastructure for pedestrians and cyclists. The absence of designated sidewalks, bike lanes, or safe crossing points can expose students to additional dangers when navigating roads. For instance, as of July 2022, the existing countywide network of facilities consisted of approximately 525 miles of different bicycle facilities

per the Miami-Dade Transportation Planning Organization (TPO) Bicycle Pedestrian Program[3] as depicted in **Table 2-2**.

Table 2- 2: Existing Bicycle Network in Miami-Dade County as of July 2022

Bicycle Facility	Length (miles)
Wide curb lanes	28
Paved shoulders	53
Sharrows	55
Unprotected bicycle lanes	197
Buffered bicycle lanes	6
Protected bicycle lanes	4
Separate bicycle lanes	1
Sub-total street bicycle network	**344**
Shared use pathways	54
Multiuse trails	127
Sub-total pathways and trails	**181**
Total	**525**

Source: Miami-Dade TPO's Bicycle Pedestrian Program

Of this total mileage, 181 miles (or approximately 34.5%) of the facilities represent a network of pathways and trails countywide as shown in **Figure 2-5**. The other 344 miles (or approximately 65.5%) represent facilities such as sharrows, unprotected bicycle lanes, wide curb lanes, protected bicycle lanes, paved shoulders, buffered bicycle lanes, or separate bicycle lanes on local, county, or state-owned roads as shown in **Figure 2-6**. Approximately 96.8% of these facilities lack protection or separation from motor vehicles.

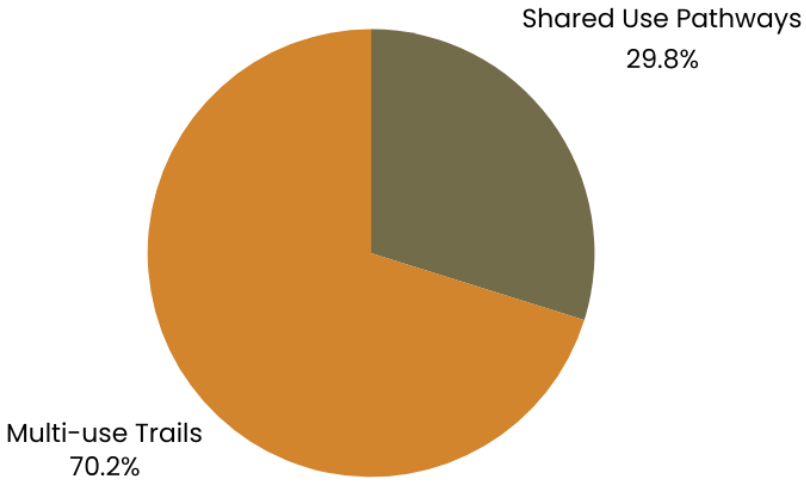


Figure 2- 5: Percentage Distribution of the Existing Pathways and Trails in Miami-Dade County (July 2022)

[3] Miami-Dade TPO Bicycle and Pedestrian Program

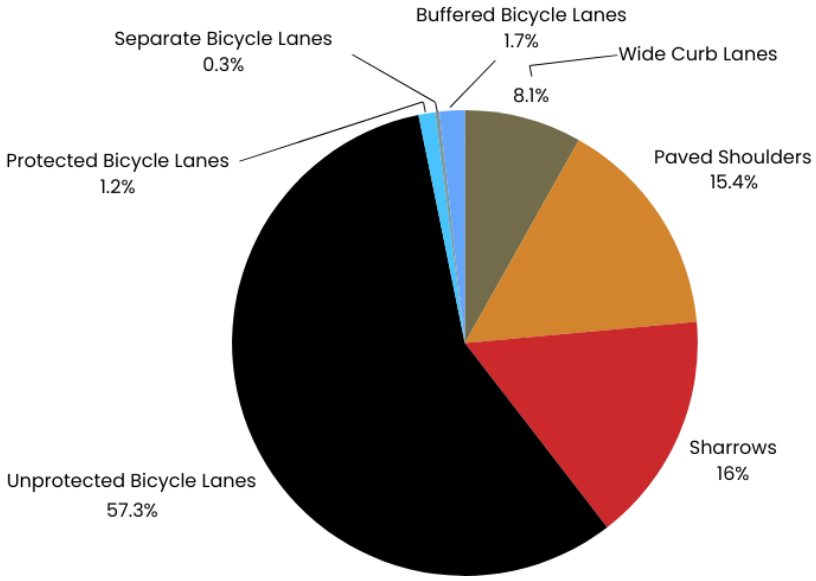


Figure 2- 6: Percentage Distribution of the Existing Facilities on Local, County, and State-owned Roads in Miami-Dade County (July 2022)

The existing countywide network, as outlined by FDOT District Six[4], is depicted in **Map 2-2,** with reference to the locations of schools.

2.3 Mobility Issues Affecting Miami-Dade Public Schools

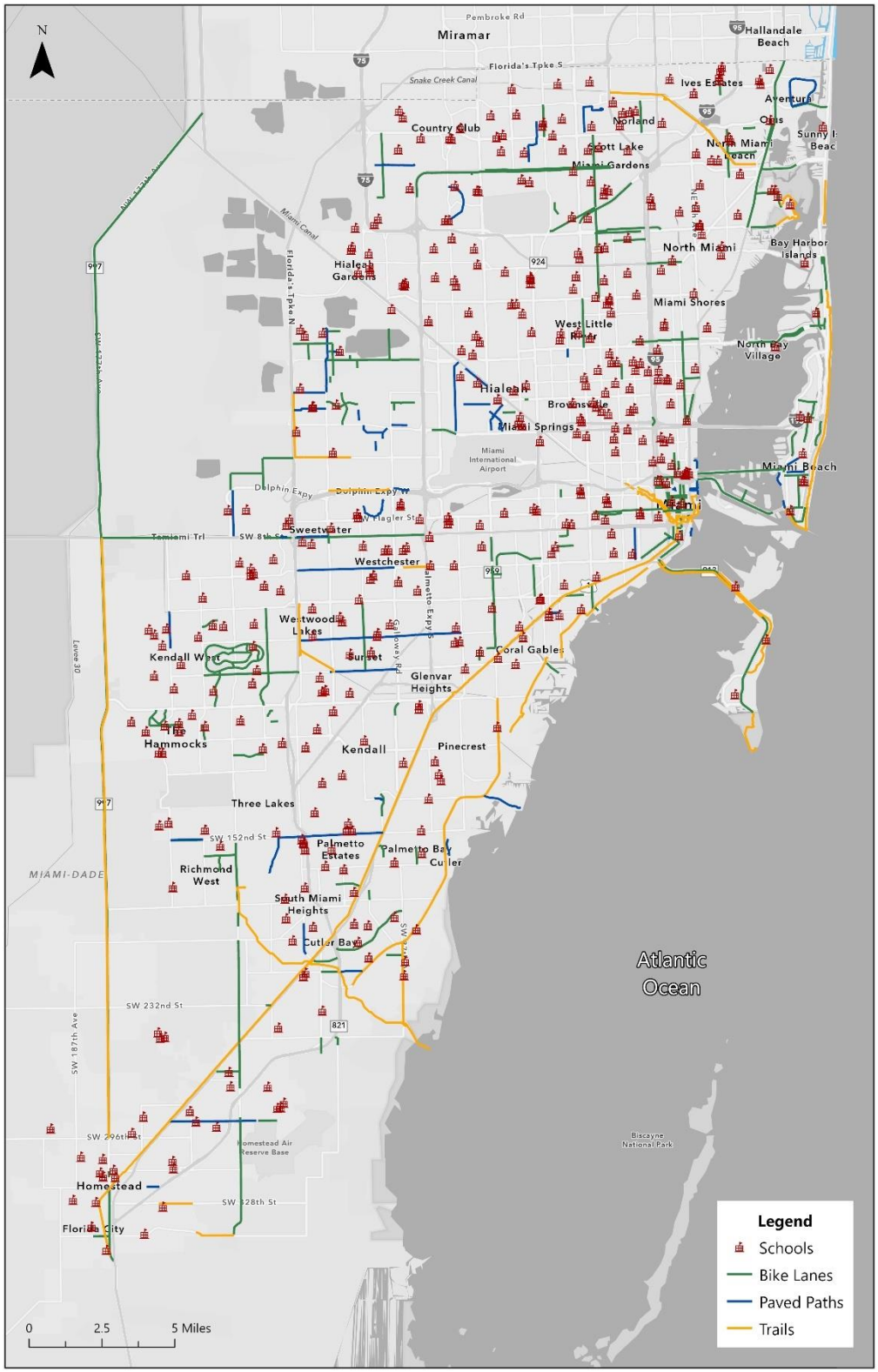
Mobility issues affecting public schools can encompass a range of challenges related to transportation and access for students, staff, and families. Issues related to cycling infrastructure are described as follows:

2.3.1 Traffic congestion during arrival and dismissal at Miami-Dade Public Schools.

Traffic congestion at Miami-Dade Public Schools is a result of having many students being transported to and from the schools at specific peak hours, which lead to traffic bottlenecks and safety concerns in and around school premises during arrival and dismissal times. Several factors contribute to these congestion issues:

- **High Student Enrollment:** Miami-Dade is the most populous county in Florida, and its public school system is the third largest school district in the United States, serving approximately 331,500 students per Miami-Dade County Public Schools[5]. Large student populations mean a significant number of vehicles and pedestrians accessing school facilities, leading to traffic congestion during arrival and dismissal.
- **Limited School Access Points:** Many schools have limited access points for vehicles to enter and exit the campus, especially in urban and densely populated areas in Miami-Dade County. This can lead to traffic jams as parents drop off and pick up their children in a confined space.

[4] FDOT District Six Bicycle Network Plan
[5] Miami-Dade County Public Schools



Map 2- 2: Existing Bicycle Network in Miami-Dade County in reference to Miami-Dade Public Schools

- **Car Transportation Dominance:** In areas with limited public transportation options, most students are dropped off and picked up by car. The reliance on private vehicles contributes to increased traffic congestion during school arrival and dismissal times.
- **Inefficient Traffic Flow Management:** Poor traffic flow management near school premises can exacerbate congestion issues. Lack of proper signage, crossing guards, or traffic police can lead to chaotic situations.
- **Bus Transportation Challenges:** Although school buses are commonly used to transport students to Miami-Dade, they can also contribute to traffic congestion when they arrive and depart from schools. Large buses need space to maneuver, and the process of boarding and alighting students can take time.

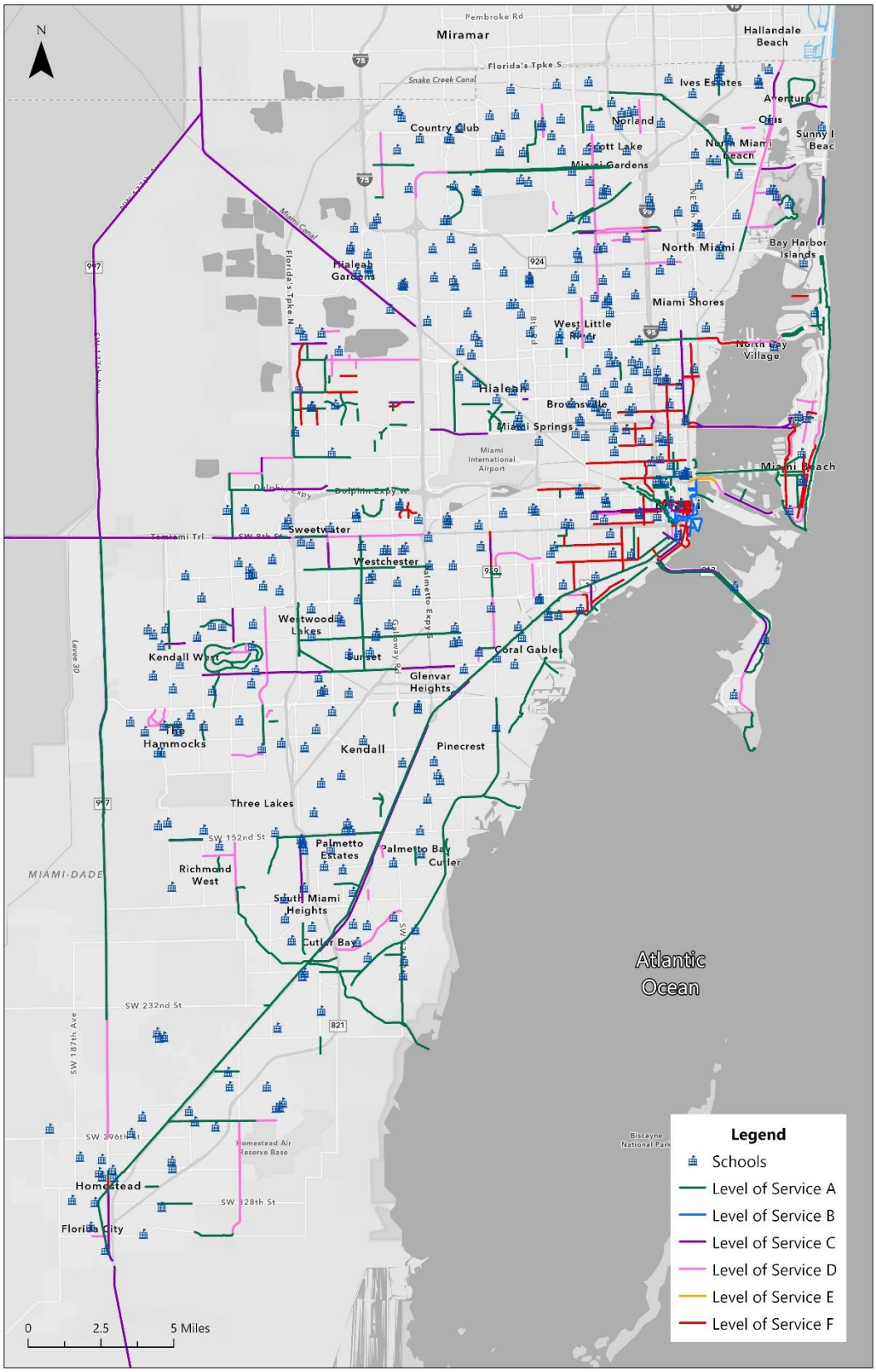
The existing conditions for the State and Miami-Dade County nonmotorized facilities was updated as part of Miami-Dade TPO's "*Systemwide Level of Service Analysis Study*" (2022)[6], evaluating the performance, observed trends, and capacity of the existing transportation system network countywide. The existing countywide bicycle network's planning Level of Service (LOS), referencing the locations of schools is depicted in **Map 2-3**. The criteria for bicycle LOSs were developed as part of that study, following concepts found in the recent version of the Highway Capacity Manual as depicted in **Table 2-3**.

Table 2- 3: Description of Bicycle LOS Characteristics

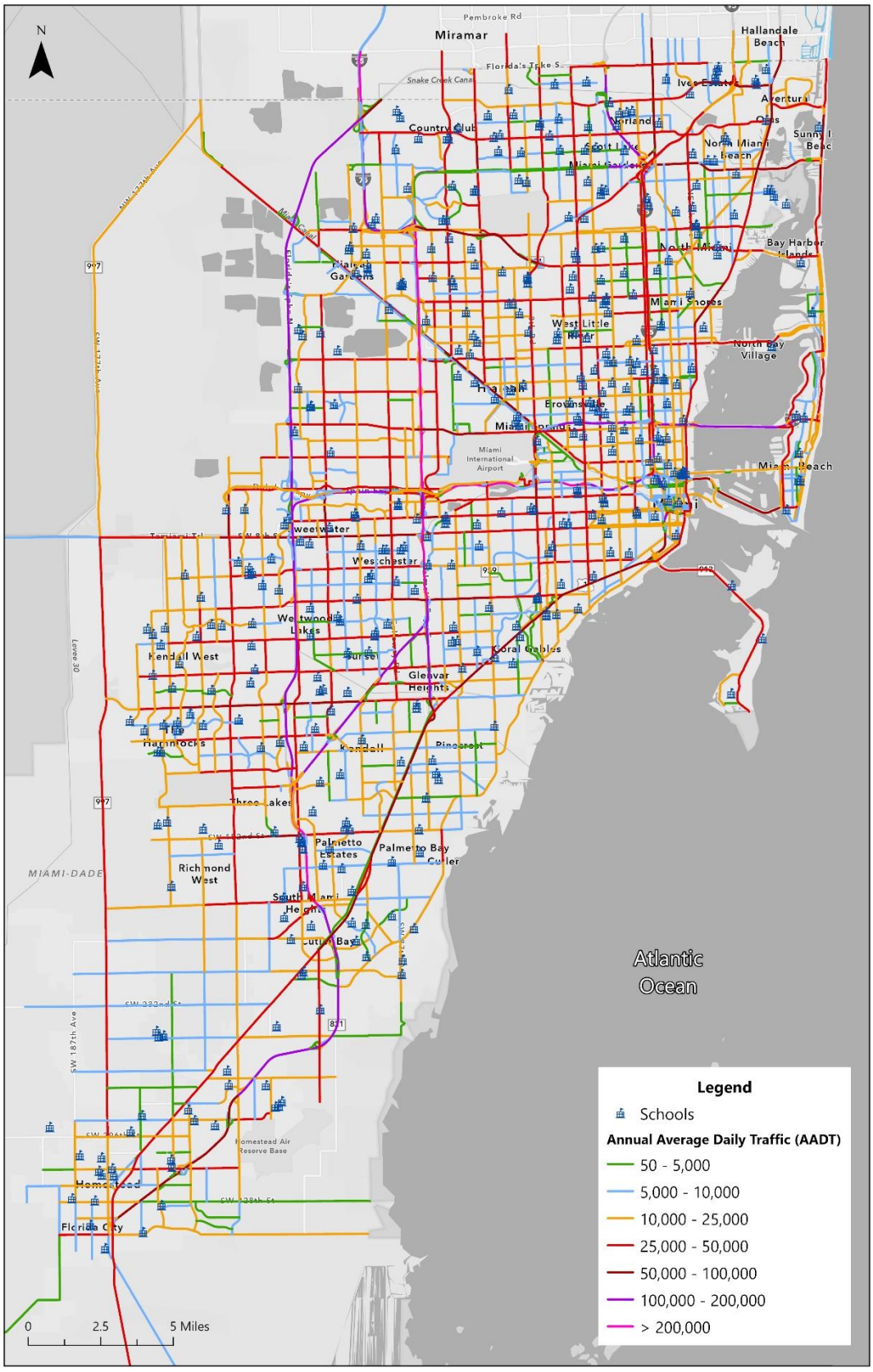
LOS	Description
A	Standard bike facility with speed limit of 35 miles per hour (mph) or less outside the Downtown Development of Regional Importance (DDRI)
B	Standard bike facility with speed limit of 35 mph or less inside the DDRI
C	Standard bike facility with speed limit of 40 mph or more inside or outside of the DDRI
D	Substandard bike facility with speed limit of 35 mph or more outside the DDRI
E	Substandard bike facility with speed limit of 35 mph or more inside the DDRI/No bike facility with speed limit of 35 mph or more
F	No LOS assigned

Additionally, some school premises are located within arterials or collectors that are either part of the State Highway System (SHS) or under the jurisdiction of Miami-Dade County Department of Transportation and Public Works (DTPW), showing high values of Annual Average Daily Traffic (AADT) from Florida Traffic Online (2022)[7] as depicted in **Map 2-4**.

[6] Miami-Dade TPO Systemwide Level of Service Analysis Study (2022)
[7] FDOT Florida Traffic Online



Map 2- 3: LOS on Bicycle Facilities Adjacent or Nearby Miami-Dade Public Schools



Map 2- 4: AADT on Roads Adjacent or Nearby Miami-Dade Public Schools

3

THE ANATOMY OF *"BIKE TO SCHOOL DAY"* EVENTS

3. The Anatomy of "*Bike to School Day*" Events

Students who choose to bike to school arrive at their destination feeling more alert and energized, as they have already activated their minds and bodies before stepping into the classroom. This fact has inspired initiatives such as "*Bike to School Day*" events, which are organized aiming at encouraging students to commute to school using bicycles. Typically held annually, these events promote the benefits of cycling for transportation, such as reducing traffic congestion, improving physical fitness, and fostering environmental sustainability. "*Bike to School Day*" events often include activities such as group bike rides, safety demonstrations, bike decorating contests, and educational programs on bicycle safety and maintenance.

Schools, local governments, transportation agencies, and community organizations collaborate to plan and execute these events, which the University of Miami's BikeSafe Program[8] has been leading in Miami-Dade County since 2013. This program is a research-supported initiative aimed at preventing injuries related to bicycling, particularly among children. Established in 2009, the BikeSafe Program emerged in response to the concerning frequency of bicycle-car collision incidents involving children aged 10 to 14 within Miami-Dade County. Leveraging the expertise gained from WalkSafe[9], its counterpart initiative, and fostering collaborative relationships with community partners, BikeSafe was conceived to impart vital bicycle safety education to the populace, with the primary aim of mitigating these incidents.

Starting in 2021, the University of Miami's BikeSafe Program has been testing the implementation of temporary bicycle lanes to showcase their ability to enhance connectivity. The first test with this initiative took place in the City of Miami during "*La Rubia Ride Celebration*" in partnership with the Wynwood Brewing Company and City of Miami Police Department, seen in **Figure 3-1**. Since then, the implementation of pop-up bicycle lanes has been incorporated into in the "*Bike to School Day*" events to serve as an educational opportunity to teach them about road safety, active transportation, and the importance of sustainable mobility options.

The University of Miami BikeSafe Program conducted two (2) "*Bike to School Day*" events after the adoption of Miami-Dade TPO's Governing Board Resolution #30-2023. These events underwent evaluation to comprehensively assess their effectiveness and impacts as part of this study, aiming to inform future decision-making and urban planning initiatives. Additionally, the evaluation aimed to establish guidelines or steps for replicating similar efforts across Miami-Dade County. These events were divided into two distinct tasks: the installation of pop-up bicycle lanes and organizing a "*bike bus*" with school children the following day. A detailed description of each task is provided in the following section.

[8] University of Miami BikeSafe Program
[9] University of Miami WalkSafe Program

Figure 3- 1: Pop-up bicycle lanes in Wynwood during the "La Rubia Ride Celebration."[10]

3.1. Pop-up Bicycle Lanes

Advocacy for safer, more accessible cycling infrastructure has surged over the past two decades, driven by mounting concerns about traffic congestion, pollution, and public health. In the 2000s and early 2010s, cities such as New York and San Francisco in the United States, and London in the United Kingdom began experimenting with temporary bicycle lanes as part of pilot projects or events like "*Ciclovía*" in Bogotá, Colombia, where streets are temporarily closed to cars and opened to cyclists and pedestrians.

The COVID-19 pandemic further accelerated the adoption of pop-up bicycle lanes in many cities. With restrictions on public transit and increased demand for outdoor activities, temporary bicycle lanes provided a safe and socially distant transportation option while enabling physical distancing. As pop-up bicycle lanes proliferated in cities worldwide, researchers and transportation planners began evaluating their effectiveness in terms of safety, usage, and public acceptance.

Overall, these temporary roadway settings can quickly be implemented to create safer spaces for cyclists within a city or urban area. These lanes are a form of creative solutions, which involves low-cost, temporary interventions to improve public spaces. The flexibility of these lanes also allows cities to test new cycling infrastructure without making permanent changes by using easily removable materials such as cones, flexible barriers, or temporary markings made of washable paint on the road surface. They are often established in response to increased demand for cycling infrastructure, events, or emergencies where regular infrastructure is inadequate.

Pop-up bicycle lanes are also designed to provide cyclists with dedicated space on the road, separate from motor vehicle traffic, promoting safer and more convenient cycling conditions. They

[10] We Painted a Tactical Urbanism Bike Lane for Kids!

can be a cost-effective way to test the effectiveness of new cycling infrastructure before making permanent changes to the urban landscape. Implementing a pop-up bicycle lane involves several key steps:

Planning and Design: The location and route for the pop-up bicycle lane must consider factors such as existing road infrastructure, traffic patterns, and community needs, with a layout that includes details such as width, markings, and signage to ensure safety and usability for cyclists.

Obtaining Permits and Approvals: Permits and approvals from local authorities such as transportation departments or municipal councils or city commissions must be coordinated. This may involve submitting plans, conducting impact assessments, or even coordinating with relevant stakeholders.

Materials and Equipment: Materials and equipment required for creating the pop-up bicycle lanes must be procured. This includes temporary barriers, traffic cones, paint, and signage, which must meet safety standards and regulations.

Installation: the pop-up bicycle lane set up is according to the planned design. This typically involves temporarily blocking off a section of the roadway using barriers or cones, painting markings to delineate the lane, and installing signage to indicate its purpose and usage.

Public Outreach and Education: Informing the community about the pop-up bicycle lane project is extremely important. This can be accomplished through outreach efforts such as flyers, social media, and community meetings. Public outreach can also include educating road users about the purpose of the pop-up bicycle lanes, how to safely navigate them, and their temporary nature.

Monitoring and Evaluation: Once the pop-up bicycle lanes are installed, gathering feedback from cyclists, pedestrians, and motorists is important. Impact on factors such as safety, connectivity, and usage shall also be evaluated to inform future decisions about permanent infrastructure improvements.

Maintenance and Removal: The pop-up bicycle lanes need to be maintained throughout their temporary duration, ensuring that markings remain visible, and barriers are secure. At the end of the designated period, this temporary infrastructure needs to be removed to restore the roadway to its original condition.

Pop-up bicycle lanes continue to evolve as a flexible and adaptable tool for promoting cycling, enhancing road safety and creating more livable cities. Their evolution reflects a growing recognition of the importance of active transportation and the need for innovative solutions to address urban mobility challenges.

3.2. "*Bike Bus*"

The "*bike bus*" movement began not with policy or planning, but with a grassroots initiative on the streets of Vic, Spain. In 2020, two teachers from El Petit Miguel school set out to escort nine children to class by bicycle, threading through traffic-clogged streets. What seemed like a simple commute grew into a catalyst, and a new kind of journey that reimagined how students move through their neighborhoods. Thus, the "*bike bus*" was born. In a typical "*bike bus*" program, a designated leader (often referred to as the "*conductor*" or "*engineer*") guides the group along a preplanned route. The route is usually chosen to be cyclist-friendly, utilizing either bicycle lanes, dedicated paths, or low-traffic roads whenever possible. Participants follow the lead of the

conductor, maintaining a safe distance between cyclists and obeying traffic rules as seen in **Figure 3-2**. The same principles apply when children are involved.

Figure 3- 2: "Bike bus" implemented during a "Bike to School Day" in Hialeah, Miami-Dade County.

A "*bike bus*" as school initiative requires coordinating with a broader group of stakeholders such as parents, school districts, and any other group of cyclists within the community to ride together in a school bus-like formation. Implementing a "*bike bus*" involves several key steps:

Define the Goals and Objectives: The goals and objectives of the "*bike bus*" program must be outlined, considering the target audience. The purpose of the program also needs to be determined, whether to be for promoting cycling as an eco-friendly transportation option, improving community health, or reducing traffic congestion.

Create a Route: A safe and suitable route for the "*bike bus*" must be planned, choosing roads or paths with minimal traffic, wide lanes, and bike lanes if possible. Routes must avoid busy intersections and hazardous areas, ensuring accommodation for the skill level and fitness of the participants.

Gather Participants: The "*bike bus*" program needs to be promoted by school staff and community leaders to gather interested participants. Social media, local cycling clubs, community centers, and other channels may be used to reach out to potential riders, encouraging parents and children of all ages and skill levels to join the "*bike bus*."

Establish Safety Guidelines: Rules and safety guidelines must be developed for participants to follow during the "*bike bus*" ride. The importance of wearing helmets, obeying traffic laws, using hand signals, and maintaining a safe distance between cyclists must be emphasized to educate participants, especially children, on group riding etiquette.

Appoint Ride Leaders: Experienced cyclists or volunteers as ride leaders must be designated. These leaders should have a good understanding of the route and be responsible for guiding the group, enforcing safety rules, and handling any emergencies.

Determine Ride Schedule: School staff in collaboration with parents and the community must decide on the frequency and timing of the "*bike bus*" rides. It could be a daily, weekly, or monthly event, depending on the program's scope and resources, considering perhaps offering rides during peak commuting hours or on weekends for recreational rides with the children.

Arrange Support Vehicles: If possible, support vehicles must be arranged to accompany the "*bike bus*" to carry tools, water, first aid supplies, and aid in case of emergencies or breakdowns, especially if routes are long.

Test Run and Training: Before launching the official rides, ride leaders must conduct a test run with a smaller group of cyclists of different ages to identify any potential issues with the route or logistics. This opportunity might be useful for providing training sessions for participants, especially for those new to group riding.

Launch and Evaluate: Once the "*bike bus*" program is launched, feedback must be gathered from participants regularly. This will help analyze the program's effectiveness in achieving its goals, and make necessary adjustments based on the feedback received.

Overall, implementing a "*bike bus*" program can be an effective grassroots strategy to demand improved cycling infrastructure, promote safer streets for cyclists, and advocate for more bike-friendly cities. By mobilizing cyclists, raising awareness, and engaging with policymakers, "*bike buses*" play a vital role in advancing the interests of the cycling community and promoting a hardened urban transportation.

4

EVALUATION OF THE UNIVERSITY OF MIAMI BIKESAFE'S "*BIKE TO SCHOOL DAY*" EVENTS

4. Evaluation of the University of Miami BikeSafe's "*Bike to School Day*" Events

To understand the local context of these events and their impact on communities, two (2) "*Bike to School Day*" events that took place after the adoption of Miami-Dade TPO's Governing Board Resolution #30-2023 were evaluated. The following sections describe the comprehensive assessment performed.

4.1. Walk, Bike, and Roll to School on Matilda Street – January 24 and 25, 2024.

This event took place on January 24, 2024, and January 25, 2024, at Coconut Grove Elementary School, with the support of the League of American Bicyclists Community Spark Grants[11], and organized by several organizations such as the Bike Coconut Grove, Grove Connect, the Coconut Grove Elementary Parent-Teacher Association (PTA), and the City of Miami Police Department. Other agencies such as the Miami-Dade County Department of Transportation and Public Works (DTPW), Friends of The Underline, and Transit Alliance Miami, and the Miami-Dade TPO participated in this event volunteering either by painting the pop-up bicycle lanes or participating and assisting in the bike bus deployment.

Before introducing the pop-up bicycle lanes and hosting the "*Bike to School Day*" event, mode share was assessed to observe transportation patterns and choices. The University of Miami BikeSafe Program carried out a survey (tally set ID 30451) at Coconut Grove Elementary as part of a previous Safe Routes to School (SRTS) evaluation in November 2019. Teachers gathered data over three (3) workdays, which is shown in **Table 4-1** and **Figure 4-1** through **Figure 4-6**.

Table 4- 1: Coconut Grove Elementary Mode Share Counts

Day of the Week and peak time	Walk	Bike	School Bus	Drive	Carpool	Transit	Other
Tuesday a.m.	60	12	1	349	9	1	2
Tuesday p.m.	57	8	24	327	12	7	4
Wednesday a.m.	61	9	1	369	10	1	6
Wednesday p.m.	64	5	3	354	8	5	10
Thursday a.m.	58	5	1	347	8	1	6
Thursday p.m.	60	6	4	341	15	7	4

Source: University of Miami BikeSafe Program[12]

[11] Launched in 2022, the League's Community Spark Grants support the growing number of local grassroots changemakers and organizations nationwide working to improve their communities through better bicycling with $1,500 mini-grants.

[12] Coconut Grove Elementary tally set ID 30451

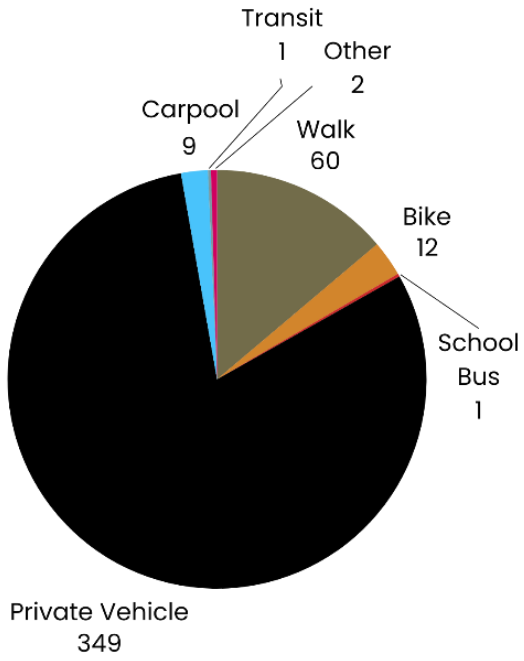


Figure 4- 1: Mode Share Counts at Coconut Grove Elementary School – Tuesday a.m. (2019).

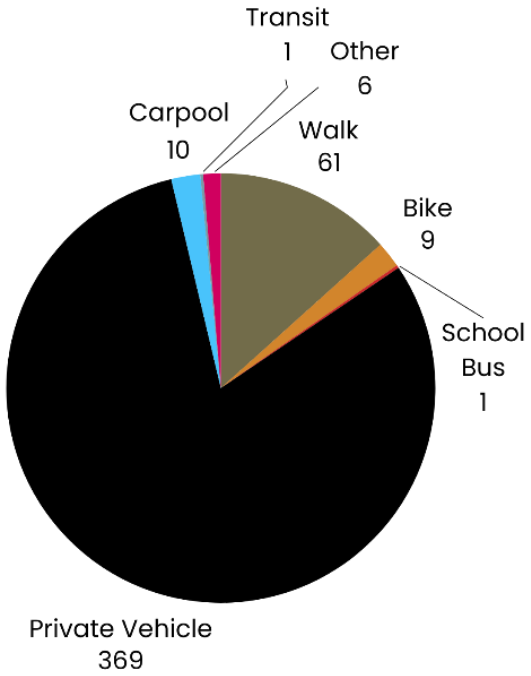


Figure 4- 3: Mode Share Counts at Coconut Grove Elementary School – Wednesday a.m. (2019).

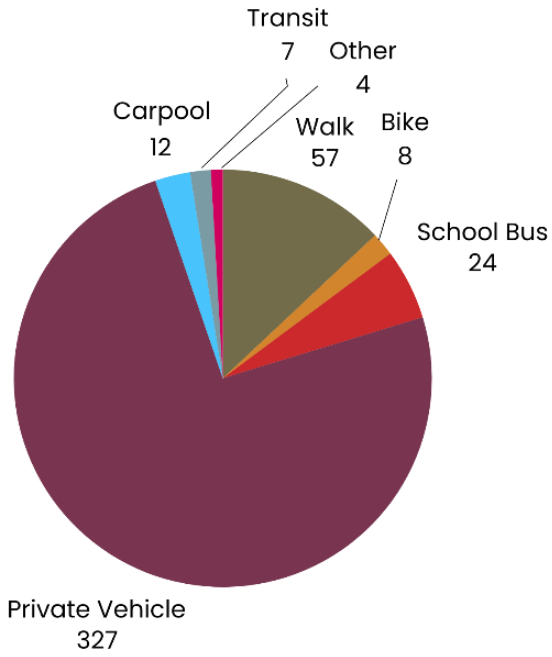


Figure 4- 2: Mode Share Counts at Coconut Grove Elementary School – Tuesday p.m. (2019).

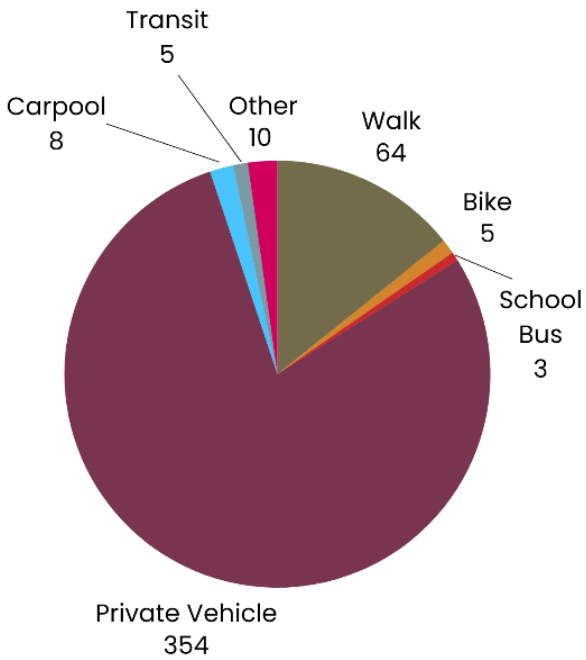


Figure 4- 4: Mode Share Counts at Coconut Grove Elementary School – Wednesday p.m. (2019).

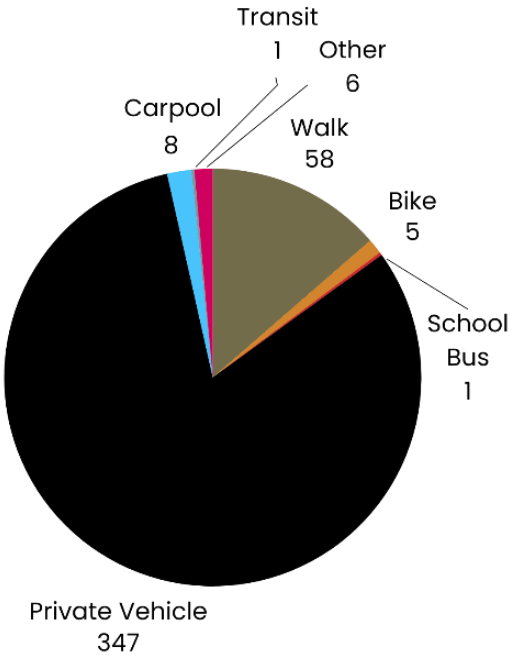


Figure 4- 5: Mode Share Counts at Coconut Grove Elementary School – Thursday a.m. (2019).

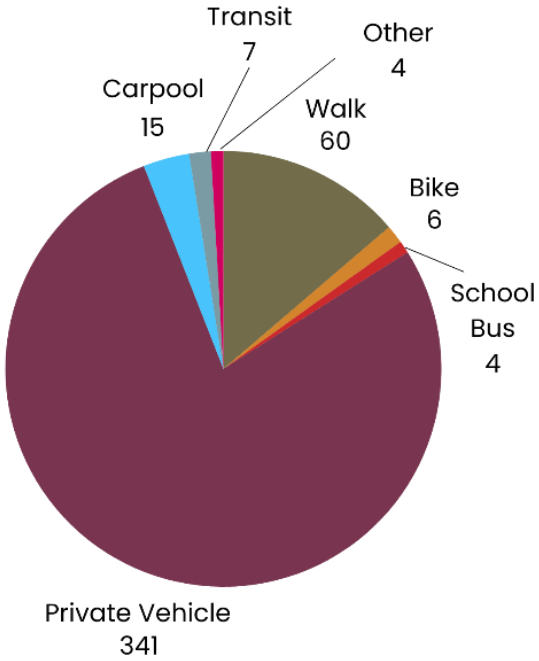


Figure 4- 6: Mode Share Counts at Coconut Grove Elementary School – Thursday p.m. (2019).

These metrics showcased that on average between 74% and 81% of the students arrived or departed school via car. In comparison, students that biked to and from school represented less than 3%. Moreover, in addition to the counts provided by Bike Coconut Grove, the Friends of the Commodore Trail, and the Coconut Grove Elementary Parent Teacher Association (PTA) to support the demand for a protected bicycle lane on this street, the University of Miami BikeSafe Program also captured traffic or participation[13]. 32 attendees participated in the pop-up bicycle lane painting, where 18 (or 56.2%) were adults and 14 (or 43.8%) were youths as seen in **Table 4-2** and **Figure 4-7**.

Table 4- 2: Matilda Street Total Participation during Pop-up Bicycle Lane Painting

Total Participants	Adults	Youths
32	18	14

Source: University of Miami BikeSafe Program[14]

[13] Approximated as participants came and left during the event, so counts fluctuated during the implementation of the pop-up bicycle lanes part of this event. The University of Miami BikeSafe's assessment resulted in the believe that these numbers are less than the actual number of participants in total over the 2.5-hour event.

[14] Matilda Street Revisited: The effect of a community bike lane for youth cycling (2024)

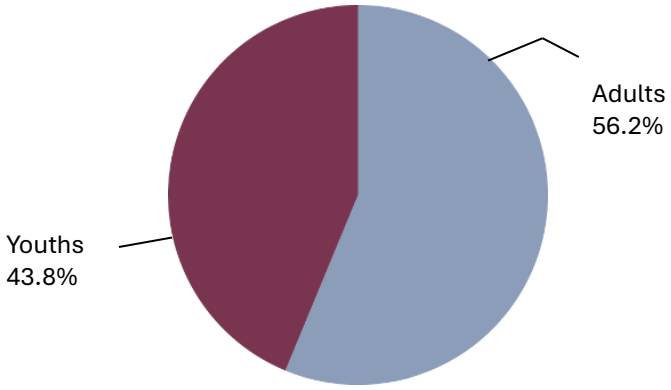


Figure 4- 7: Distribution of Attendees during Pop-up Bicycle Lane Painting

Attendance at school was also measured during the two-day event to measure transportation patterns, focusing on any changes in behavior. Data showed that school attendance by car decreased by 22.83%, going from 219 counts prior to the implementation of the pop-up bicycle lanes to 168 counts during the "*Bike to School Day*" event. Regarding school attendance who either participated in the "*bike bus*" or decided to cycle to school separately, the total count was 122 during the "*Bike to School Day*" event, a significant increase in counts from the 2019 SRTS data collection totals. Data collected during the "*Bike to School Day*" event on Matilda Street at Coconut Grove Elementary is showcased in **Table 4-3** and **Figure 4-8**.

Table 4- 3: Matilda Street Attendance Counts by motor vehicle prior to and during the "Bike to School Day" event.

Attendance Counts prior to the pop-up bicycle lanes	*Attendance Counts during the "Bike to School Day" event*
219	168

Source: University of Miami BikeSafe Program.

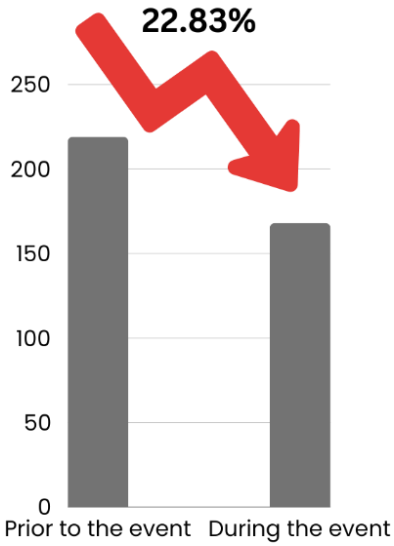


Figure 4- 8: Changes in Participation Counts by motor vehicle prior to and during the "Bike to School Day" event at Matilda Street

Photographic documentation of the implementation of the pop-up bicycle lanes is illustrated in **Figure 4-9** through **Figure 4-12**.

[15]

Figure 4- 9: Participants receiving instructions prior to painting a "bike box" by the end of the layout of the pop-up bicycle lanes on Matilda Street.

Figure 4- 10: Participants heading towards the beginning of the layout of the pop-up bicycle lanes to begin painting yellow pavement markings to designate bidirectionality on Matilda Street.

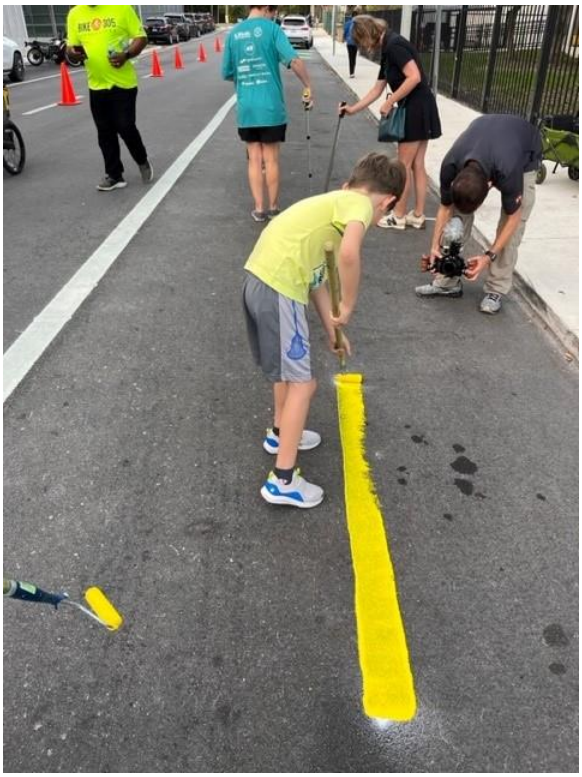


Figure 4- 11: Participants painting yellow pavement markings to designate bidirectionality along the layout of the pop-up bicycle lanes on Matilda Street.

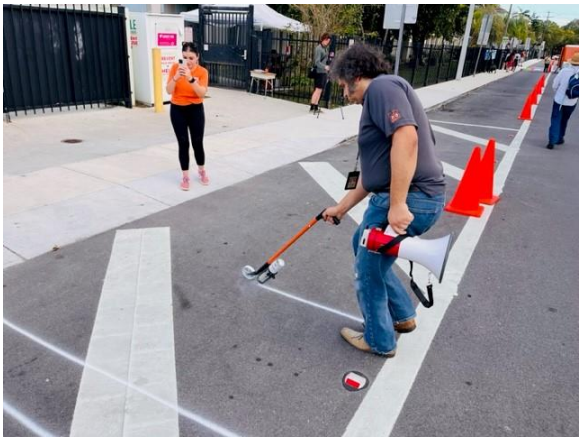


Figure 4- 12: University of Miami BikeSafe Program staff laying out green pavement marking skips on Matilda Street prior to painting activities.

[15] Kids Painted This Bike Lane in Miami!

Photographic documentation also took place during the "*bike bus*" implementation, which can be found in **Figure 4-13** through **Figure 4-18**. Additionally, the route chosen for the "bike bus" is illustrated in **Map 4-1**.

Map 4- 1: Matilda Street "Bike to School Day" "bike bus" route

Figure 4- 13: "Bike bus" meeting point at Blanche Park.

Figure 4- 14: "Bike bus" meeting point at Blanche Park.

Figure 4- 15: "Bike bus" heading towards Matilda Street on Shipping Avenue.

Figure 4- 16: "Bike bus" on Matilda Street.

Figure 4- 17: "Bike bus" on Coconut Grove Elementary.

Figure 4- 18: Bike parking after the "bike bus."

4.2. Walk, Bike, and Roll to School on Henry H. Filer Middle School – April 15 and 16, 2024.

This event took place on April 15, 2024, and April 16, 2024, at Henry H. Filer Middle School, with the support of the City of Hialeah. Other agencies such as the FDOT District Six, Miami-Dade County DTPW, and the Miami-Dade TPO participated in this event volunteering either by painting the pop-up bicycle lanes or participating in and assisting the bike bus deployment.

Before introducing the pop-up bicycle lanes and hosting the "*Bike to School Day*" event, mode share was assessed to observe transportation patterns and choices. The University of Miami BikeSafe Program carried out a survey (tally set ID 31390) at Henry H. Filer Middle School as part of a previous Safe Routes to School (SRTS) evaluation in November 2020[16]. Teachers gathered data during one (1) workday, which is shown in **Table 4-4** and **Figure 4-19** and **Figure 4-20**.

Table 4- 4: Henry H. Filer Middle School Mode Share Counts

Day of the Week and peak time	Walk	Bike	School Bus	Drive	Carpool	Transit	Other
Tuesday a.m.	45	2	381	195	8	1	3
Tuesday p.m.	56	2	414	171	6	2	3

Source: University of Miami BikeSafe Program

The metrics indicated that, on average, between 71% and 77% of students arrived or departed school via bus. In contrast, those who biked to and from school accounted for less than half a percent. Additionally, beyond the counts provided by the Henry H. Filer Middle School Parent Teacher Association (PTA) to support the “Bike to School Day” initiative, the University of Miami BikeSafe Program captured participation data from visual assets prepared in both English and Spanish, considering that 92% of residents speak Spanish as their first language. A total of 112 individuals either participated in or were reached by the initiative, with 40 (or 35.7%) being adults and 74 (or 64.3%) youths, as shown in **Table 4-5** and **Figure 4-21**.

Table 4- 5: Henry H. Filer Middle School Total Reach during both Events

Event	Total Participants	Adults	Youths
Let's Make a Bike Lane!	**38**	30	8
Bike, Walk and Roll to School Day in Hialeah at Henry Filer Middle School	**74**	10	64

Source: University of Miami BikeSafe Program[17]

[16] The COVID-19 pandemic may have influenced this data, potentially affecting its accuracy or reflecting temporary trends and disruptions caused by the global health crisis. Please consider these factors when interpreting the results.

[17] Henry H. Filer Middle School’s “*Let's Make a Bike Lane!*” and “*Bike, Walk, and Roll to School Day*” Communications Report

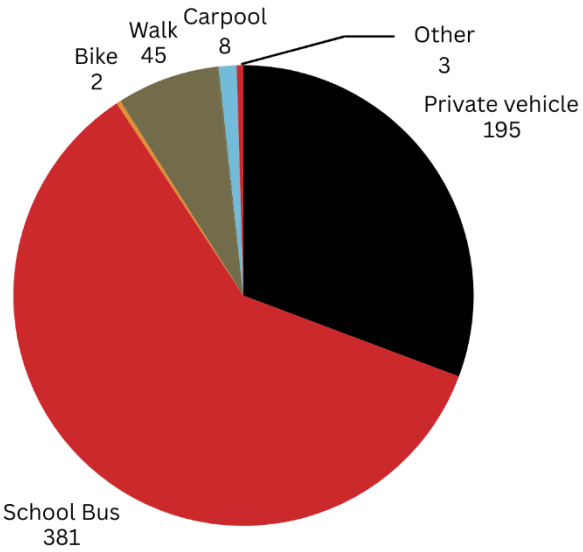


Figure 4- 19: Mode Share Counts at Henry H. Filer Middle School – Tuesday a.m. (2020).

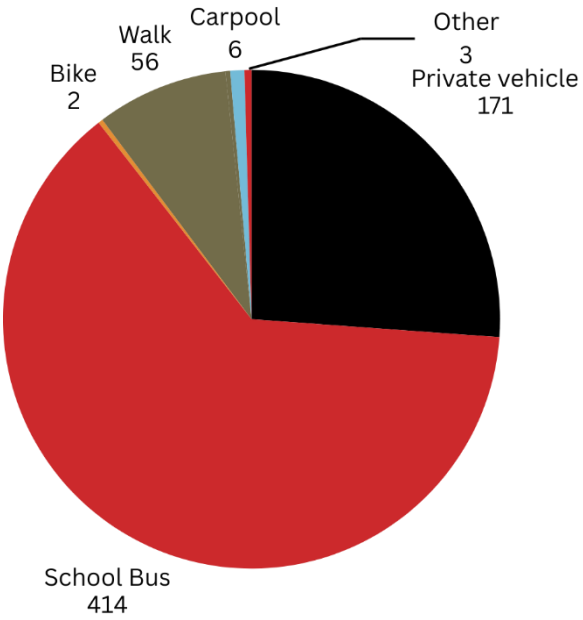


Figure 4- 20: Mode Share Counts at Henry H. Filer Middle School – Tuesday p.m. (2020).

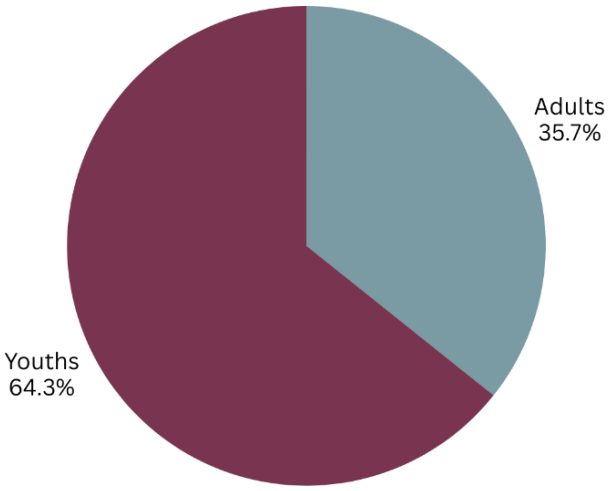


Figure 4- 21: Distribution of Attendees during Both Events.

Photographic documentation of the implementation of the pop-up bicycle lanes is illustrated in **Figure 4-22** through **Figure 4-27**.

Figure 4- 22: Participants painting green bike box pavement markings to designate bike area on the pop-up bicycle lanes on W 6 Avenue.

Figure 4- 23: School Board Member (District 4) and Miami-Dade TPO Board Member Roberto J. Alonso and other participants painting pavement markings on W 6 Avenue.

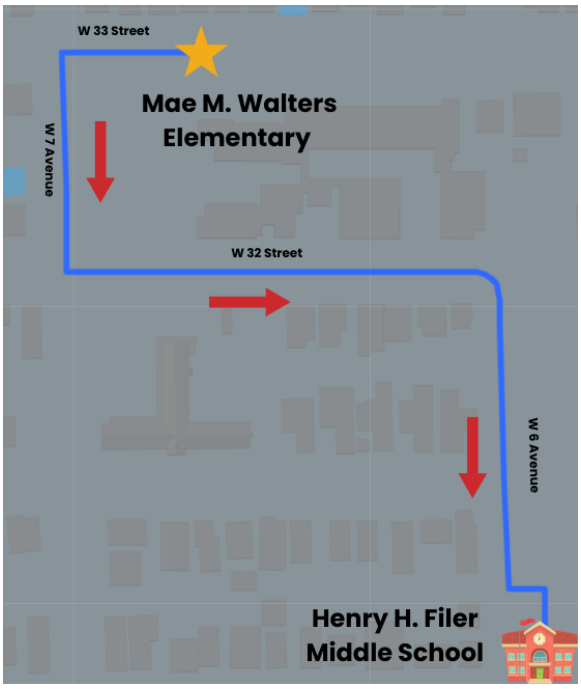
Figure 4- 24: Pavement markings on the pop-up bicycle lanes on W 6 Avenue.

Figure 4- 25: Pavement markings for pop-up bicycle lanes on W 6 Avenue.

Figure 4- 26: Final layout of pavement markings to designate traffic flow separation on the pop-up bicycle lanes on W 6 Avenue.

Figure 4- 27: Participants painting pavement markings on W 6 Avenue.

Photographic documentation of the "*bike bus*" implementation is provided in **Figure 4-28** through **Figure 4-30**. Anecdotally, many of the families and students who attended shared that they were originally from outside the United States, particularly from Cuba. Several mentioned that the event provided a meaningful opportunity to celebrate their heritage and build stronger connections within the community. Additionally, many students shared that they used to bike to school before moving to the United States but lost that opportunity after arriving in Miami. For them, the experience of biking to school again brought a sense of joy and familiarity. The selected route for the "*bike bus*" is shown in **Map 4-2**.



Map 4- 2: Henry H. Filer Middle School "Bike to School Day" "bike bus" route.

Figure 4- 28: Participants riding bikes along W 7 Avenue after departing Mae M. Walters Elementary School.

Figure 4- 29: Participants riding bikes along W 6 Avenue prior to arriving to Henry H. Filer Middle School.

Figure 4- 30: Participants riding bikes along W 6 Avenue prior to arriving to Henry H. Filer Middle School.

5

LESSONS LEARNED FROM HOSTING PEER EXCHANGE SESSIONS WITH OTHER ORGANIZATIONS

5. Lessons learned from hosting Peer Exchange Sessions with other organizations

Peer exchange sessions are essential for fostering collaboration and sparking innovation in the development of bike-bus initiatives and bike-to-school events. They provide a valuable platform for organizations to share their successes, challenges, and lessons learned, allowing participants to avoid common pitfalls and implement effective strategies.

In August 2024, the Miami-Dade TPO hosted a series of peer exchange sessions aimed at building networks and partnerships. These gatherings encouraged collaboration on shared goals, such as improving student safety, promoting physical activity, and reducing traffic congestion around schools. Participants delved into critical topics, including policy development, funding strategies, and community engagement, while aligning their efforts with broader mobility goals like Vision Zero and Complete Streets.

Beyond discussions, the sessions summarized below served as a catalyst for innovative thinking, exploring solutions such as integrating bike-to-school programs with public transit and using technology to enhance both participation and safety. By fostering open dialogue and collaboration, the peer exchange sessions provided valuable insights that will help Miami-Dade and its partners shape more effective, sustainable transportation initiatives moving forward.

5.1 Peer Exchange Session with Bike Bus PDX – August 16, 2024.

Bike Bus PDX is a creative and community-driven initiative in Portland, Oregon, designed to make commuting to school safer, more active, and enjoyable for students. Modeled after a traditional school bus but with bicycles, Bike Bus PDX organizes groups of students and parent volunteers to ride along predetermined routes, picking up riders at designated stops before reaching school. This approach not only promotes a fun and healthy commute but also encourages a sense of camaraderie among participants.

A key strength of Bike Bus PDX is its emphasis on safety and inclusivity. The routes are strategically planned to follow low-traffic streets and areas with a bike-friendly infrastructure, ensuring that children of all skill levels can participate comfortably. Adult volunteers serve as ride leaders, guiding the students and reinforcing traffic safety, which further boosts the program's organization and effectiveness.

By turning biking into a group activity, Bike Bus PDX addresses parents' concerns about letting children bike alone, while fostering independence in a supportive setting. The program also incorporates educational elements, teaching students the importance of road safety, active transportation, and sustainability. At the same time, it helps to reduce vehicle congestion around schools during peak hours, creating a safer and cleaner environment.

Figure 5- 1: Abernethy Bike Bus in Portland

Source: Bike Bus PDX

On August 16, 2024, a peer exchange session was held to explore Bike Bus PDX, where participants learned valuable lessons and insights from the initiative. The following summary highlights key takeaways and how they can be applied to similar efforts in Miami-Dade County, reinforcing the benefits of this model for promoting active transportation.

1. The bike bus initiative, especially when combined with temporary infrastructure improvements like pop-up bike lanes, could serve as a strong demonstration project. This approach offers a cost-effective way to improve road safety and could strengthen applications for federal or state transportation funding.
2. Before organizing a bike bus or bike-to-school program, several important questions need to be addressed such as:

    a. Do the children know how to ride a bike?
    b. How many children in the area own a bike?
    c. Is the surrounding infrastructure safe enough for such a program?
    d. Is there sufficient bike storage available in the neighborhood or at the school?
    e. Are there enough volunteers to support the coordination of a bike bus program?
    f. Are school staff members or parents interested in participating?

3. It is also crucial to evaluate school bus routes to identify potential candidates for bike bus routes, ideally keeping them within 1¼ miles of the school. Routes with speed limits under 30 mph, particularly on traffic-calmed roads, part of the SRTS network, or along neighborhood greenways, are preferable. Selecting the right route requires a thorough review of the school's catchment area.
4. When it comes to gathering points, these will vary by neighborhood, but parks and safe street corners are good locations.
5. Volunteer involvement is essential for successfully implementing a bike bus or bike-to-school program. These programs can also help build the political support needed for broader transportation improvements.

5.2 Peer Exchange Session with Kiddical Mass Brussels – August 22, 2024.

Kiddical Mass Brussels is a family-centered cycling initiative in Belgium that encourages children and parents to ride together through the city in a fun, safe, and supportive setting. Inspired by the global Critical Mass movement, Kiddical Mass raises awareness of the need for safer and more accessible cycling infrastructure, particularly for young riders. By organizing monthly group rides throughout Brussels, the initiative not only advocates for the rights of children to safely navigate city streets but also promotes the broader benefits of active and sustainable transportation.

A key objective of Kiddical Mass Brussels is to provide a safe environment for children to ride their bikes in areas where traffic and inadequate infrastructure often pose challenges. The carefully planned routes draw attention to spots in the city that require improvements, such as dedicated bike paths or traffic-calming measures, which would make cycling safer for everyone, especially kids. In joining these events, families send a powerful message to city officials about the importance of incorporating cycling into urban planning.

The event is designed to be inclusive and accessible to riders of all ages and skill levels. The group rides move at a slow, manageable pace so even the youngest cyclists can participate, and the atmosphere is celebratory, with colorful decorations, music, and costumes adding to the sense of fun. This playful energy not only makes the rides enjoyable but reinforces the idea that cycling should be a safe, welcoming activity for people of all ages.

On August 22, 2024, a peer exchange session was held to explore Kiddical Mass Brussels, where participants gained valuable insights from the initiative. The lessons learned, summarized below, provide important takeaways that can be adapted for similar efforts in Miami-Dade County, emphasizing the impact of community-driven models in promoting active transportation and child-friendly urban spaces.

Figure 5- 2: Kiddical Mass ride in Brussels

Source: Kiddical Mass Brussels

1. In Belgium, several cities have implemented a "*bike bank or library*" program known as "*fietsbieb*."[18] Through this program, children can loan a bicycle for a year with a membership fee of €20 and a €20 deposit. This initiative offers a practical model for Miami-Dade County to expand access to cycling events for children in neighborhoods that have fewer transportation options. It is a thoughtful approach to strengthening community ties, encouraging healthy activity, and ensuring all families can benefit from local programs.
2. Kiddical Mass bike rides typically start or finish at parks or playgrounds and cover 3 to 4 miles, including a break along the route. The routes are designed to be as flat as possible, avoiding major roads with heavy traffic to ensure safety.
3. The logistics of running these events are supported by a mix of government funding and public donations. Additionally, volunteers, alongside local police bike brigades, play a crucial role in ensuring the safety and security of all participants. These events also incorporate bike safety education, similar to the University of Miami BikeSafe's curriculum.

[18] Fietsbieb, or "*Bike Library*," is an innovative initiative based in Belgium that aims to promote cycling among families and individuals by providing access to bicycles through a lending system. This unique concept allows people to borrow bikes for a specific period, making cycling more accessible, especially for those who may not own a bicycle or wish to try cycling before making a purchase.

5.3 Peer Exchange Session with Walk Cycle Lyneham and Beyond Bike Bus Program – August 30, 2024.

Walk Cycle Lyneham is a community-oriented initiative in Canberra, Australia, designed to promote walking and cycling as primary modes of transportation, particularly for local school children. By encouraging families to opt for walking and biking for short trips instead of relying on cars, the program aims to cultivate a culture of active transport within the community.

Through advocacy for infrastructure enhancements, safety measures, and community involvement, Walk Cycle Lyneham aspires to make active transportation appealing and safe for people of all ages.

A key feature of this initiative is the Beyond Bike Bus Program, which functions like a traditional school bus but uses bicycles instead. This program organizes group rides for students, allowing them to journey to school together under the supervision of adult volunteers. Beyond the physical benefits of cycling, the program fosters social connections among students, creating a supportive environment where they can gain confidence in their cycling abilities.

Safety and inclusivity are cornerstones of the Beyond Bike Bus Program, with routes thoughtfully chosen to prioritize low-traffic streets and safe cycling infrastructure. Adult volunteers serve as ride leaders, ensuring participants adhere to road safety rules and navigate the community safely. This supportive framework alleviates parents' concerns about their children biking alone, enhancing their sense of security.

Figure 5- 3: Bike Ride Details Prepared for Event at Lyneham Primary School

Source: Walk Cycle Lyneham and the Beyond

On August 30, 2024, a peer exchange session was held to delve into Walk Cycle Lyneham and the Beyond Bike Bus Program, providing participants with valuable insights from the initiative. The lessons learned, outlined below, offer important takeaways that can be adapted for similar efforts in Miami-Dade County, highlighting the potential of community-driven models to promote active transportation and create child-friendly urban spaces.

1. Lyneham depends heavily on social media groups to spread essential information about routes, points of interest, program needs, and more. The program is sustained through in-

kind volunteer efforts, which are occasionally supplemented by donations from local businesses and organizations within the community. While it has grassroots origins and receives some support from the local government, the program relies entirely on the dedication and advocacy of its volunteers.

2. The bike bus was created to help children, and the broader community feel safe and confident while riding. Volunteers engage in detailed discussions about potential routes, testing them thoroughly to assess risks and identify any dangerous spots. Once evaluated, these routes are marked to guide riders, ensuring they follow the designated path to avoid unexpected hazards.

Figure 5- 4: Bike Bus in Canberra, Australia

Source: Walk Cycle Lyneham and the Beyond

6

RECOMMENDATIONS

6. Recommendations

Drawing on the data collected, field experiences, and collaborative sessions with various agencies, implementing pop-up bicycle lanes and "*Bike to School Day*" initiatives at schools—particularly those with diverse demographics and a significant percentage of Spanish or Haitian Créole speakers, like many in Miami-Dade County—requires careful planning and active community involvement. Below are some recommendations to consider:

Community Engagement and Outreach:

a) Engage students, parents, and community members to gather insights on their needs and preferences regarding bicycle lanes and potential routes. This approach can help pinpoint specific challenges and opportunities related to safety concerns or the lack of infrastructure that may hinder students from biking to school.
b) Ensure that all outreach materials—such as surveys, flyers, and presentations—are available in English, Spanish, and Haitian Créole to reach a wider audience. While many students in Miami-Dade County may be proficient in English, their parents may not be, and English may be a second language spoken at home. Providing materials in multiple languages will encourage greater participation from both students and their parents or legal guardians.
c) Organize events or workshops to educate families about the benefits of biking and the proposed changes. Whenever possible, conduct these sessions in various languages to ensure inclusivity for those with limited English proficiency.

Collaboration with Local Organizations:

a) Work together with government agencies at various levels, local non-profits, advocacy groups, and schools to promote biking and build support for the initiative. Engaging a wide range of participants ensures a rich diversity of ideas and perspectives, leading to more comprehensive temporary infrastructure improvement proposals that address the community's needs and the specific context of the roadway where it will be implemented.
b) Motivate local businesses to support the initiative by sponsoring events, offering bike-related services, or promoting safe biking practices. Partner with local shops to leverage their expertise on nearby bike clubs, trails, and preferred locations for safe cycling, particularly for those who may be inexperienced on two wheels.

Design Considerations:

a) Design pop-up lanes that prioritize safety by incorporating physical barriers, where right-of-way permits. These barriers will help separate cyclists from vehicle traffic, reducing the risk of accidents. Additionally, ensure that the design includes clear signage and well-marked crossings, which will help both cyclists and drivers understand the intended use of the lanes. Considerations for accessibility should include adequate widths for cyclists of all ages and abilities, as well as smooth transitions at intersections. This initiative should be aligned with countywide and municipal Vision Zero goals and other road safety efforts, which aim to eliminate traffic-related fatalities and create safer environments for all road users.

b) Bright paint, reflective materials, and clear markings shall be used to enhance the visibility of the pop-up lanes, making them easy to identify for both cyclists and drivers. Materials should be also easily removable after the demonstration project is completed.
c) Thoroughly analyzing traffic volumes and patterns during school arrival and departure times is vital for selecting optimal routes. Identifying peak traffic hours will help minimize exposure to heavy vehicle traffic, prioritizing student safety. Consider employing tools such as traffic studies or data from local traffic management systems when planning "*bike bus*" or "*Bike to School*" routes.
d) Before finalizing route selections, conduct a comprehensive inspection of the physical condition of the roads. Look for hazards such as potholes, uneven surfaces, or debris that could pose risks to cyclists. If a route is deemed favorable, document any necessary repairs and coordinate closely with the appropriate agencies to ensure a smooth and safe ride for students.
e) Assess the current biking facilities available at the school, including nearby bike lanes, paths, and bike racks. Identify routes that connect to existing bike infrastructure to promote safe and efficient travel, or that mimic traditional school bus routes to provide a sense of familiarity for students. Document any gaps in infrastructure to advocate for future improvements.
f) Select meeting points that are well-lit and visible, ideally located in areas with low traffic congestion. Community centers, parks, or other popular neighborhood spots can serve as excellent gathering locations. To enhance safety and foster a sense of community, ensure that these sites are monitored or supervised by responsible adults.
g) The designated meeting points must be accessible for all students, including those with disabilities or those requiring additional assistance. Consider key factors such as proximity to public transportation, the availability of sidewalks, and safe crossing options to facilitate ease of access.
h) Use clear and visible signage to guide students to the meeting points. This can include directional signs, banners, and flyers that effectively communicate the meeting time and location. To accommodate all families, ensure that signs are available in multiple languages, including Spanish and Haitian Créole.
i) To ensure a smooth and safe journey, assign adult volunteers—such as teachers, parents, or community members—to lead the bike bus from the meeting point to the school. These leaders will help organize students, maintain safety, and ensure adherence to traffic rules during the ride. Ideally, they should also be able to communicate in languages such as Spanish or Haitian Creole to better serve the needs of all participants.

Evaluation and Feedback:

a) Once the pop-up lanes have been implemented, it is crucial to collect comprehensive data on their usage as well as the feedback received from parents, teachers, and students. This data will provide valuable insights into how effectively the new infrastructure is serving the community. Specifically, assessing changes in transportation patterns before and after implementation will be essential for evaluating the lanes' efficacy and guiding future enhancements. Additionally, when selecting schools for a pop-up bicycle lane demonstration project, it is important to consider existing ridership levels and the availability of bike racks on

school premises. This information ensures that the selected locations are equipped to support increased cycling activity, ultimately enhancing the overall impact of the initiative.

b) After the pop-up bicycle lanes are established, it is vital to continue soliciting feedback from the community to identify areas for improvement and address any concerns that may arise. Engaging with parents, students, and local residents will help create a dialogue that fosters trust and collaboration. Regularly collecting feedback not only allows for timely adjustments to future and more permanent infrastructure but also demonstrates a commitment to meeting the community's needs. This ongoing engagement will ensure that the pop-up lanes evolve in response to user experiences, ultimately contributing to safer and more effective cycling infrastructure.

Sustainability and Future Planning:

a) Utilize the pop-up lanes as a pilot program to effectively demonstrate their impact on cycling safety, accessibility, and overall community engagement. By carefully documenting the positive outcomes observed during the demonstration, such as increased ridership, enhanced safety perceptions, and community feedback, municipalities can build a compelling case for more permanent infrastructure improvements. Ultimately, the goal is to transition from temporary measures to long-lasting changes that provide a safe and inviting environment for cyclists, encouraging a culture of biking as a viable transportation option.

b) Collaborate closely with local authorities to ensure that the community’s needs and priorities are considered in broader transportation planning initiatives. This involves actively participating in local government meetings, advocating for the inclusion of cycling infrastructure in city or county plans, and highlighting the importance of safe biking routes in promoting public health and reducing traffic congestion. This is essential to identify and pursue funding opportunities for the development of permanent infrastructure, which could include federal, state, or local grants, as well as partnerships with non-profit organizations that focus on sustainable transportation.

By following these recommendations, schools can create a welcoming and safe environment for all students to bike to school, fostering a culture of active transportation within diverse communities.

TPO

Miami-Dade Transportation Planning Organization