RESIDENTIAL SPEED LIMIT REDUCTION STUDY

FEBRUARY 2024

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Residential Speed Limit Reduction Study

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Acronyms

COJ	City of Jacksonville
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
ITE	Institute of Transportation Engineers
JFRD	Jacksonville Fire and Rescue Department
JSO	Jacksonville Sheriff's Office
MPH	Miles Per Hour
NACTO	National Association of Transportation Officials
NHTSA	National Highway Safety Administration
S4	Signal 4 Analytics
SFS	Speed Feedback Signs
SSC	Speed Safety Cameras



Executive Summary

EXECUTIVE SUMMARY

The City of Jacksonville has some of the highest speed roadways with the presence of pedestrians in the country¹, is the third highest area in the country for bicycle fatalities², and is the sixth highest area in the country for pedestrian fatalities³.

Further, leading transportation authorities agree that **reducing speed limits** *alone* **increases safety** by **lowering the intensity and frequency of crashes**⁴. In addition, **local roads are the most vulnerable** of all road types to speed-related incidents and have the **highest speed**-

related fatalities when compared to all other road types⁵.

In an effort to address these statistics, the City of Jacksonville investigated the impact of reducing the speed limit on all residential streets to 20 mph through this 20 is Plenty Residential Speed Reduction Study ('Study').

By applying foundational elements from the Federal Highway Administration's (FHWA's) *Safe Systems Approach*, the *Study* resulted in a set of **Action Items** to be deployed by the city that not only includes reducing the residential speed limit, but also specifies policy revisions, traffic calming treatments, and enforcement strategies that have been demonstrated to effectively increase the safety of roadways across the country.



Study Purpose

The purpose of this study is to conduct a speed reduction analysis for the City of Jacksonville to achieve the following objectives:



¹ <u>Safe Speed Index</u>, Streetlight, 2023.

- ³ <u>Dangerous by Design</u>, Smart Growth America, 2022.
- ⁴ Speed Zoning: For Highways, Roads, and Streets in Florida
- ⁵ Speed as a Safety Problem, Institute of Transportation Engineers (ITE), 2019



² Statistic from League of American Bicyclists, news article from <u>Action News Jax</u>

Study Process

The study process consisted of four main elements:

- Data Collection and Analysis: Consisted of a posted speed limit inventory, crash analysis, and literature review.
- Public Outreach: Featured an online public survey which yielded over 2,600 participants.
- Speed Reduction Methods: Identified methods to reduce roadway speeds including lowering the speed limit by changing the posted signs and applicable traffic calming treatments.
- Speed Reduction Strategy Roadmap: The study recommendations were synthesized into an implementation roadmap displaying action items including policy revisions and enforcement strategies.

Safe Systems Approach

FHWA's *Safe Systems Approach* for setting local speed limits by has been unanimously recommended by leading transportation agencies including FDOT, ITE, NACTO, and the Vision Zero Network. The *Safe Systems Approach* was used as the primary guiding document for the *20 is Plenty* study process.

The *Safe Systems Approach* works by building and reinforcing multiple layers of protection to **both prevent crashes from happening** in the first place **and minimize the harm** caused to those involved when crashes do occur. It is a comprehensive approach that provides a guiding framework to make places safer for people.

The *Safe Speeds Element* is one of the five elements of the *Safe System Approach* highlighting the fact that **safe speeds can increase human survivability of a crash**.



Data Collection and Analysis

A data collection and analysis process was developed to evaluate the effectiveness of lowering the residential speed limit. This process was three-fold and included a posted speed limit inventory, a crash analysis, and a literature review. A summary of the findings from the data collection and analysis process is provided below. Further details on the data collection and analysis process are provided in **Section 2.0 Data Collection and Analysis**.

Posted Speed Limit Inventory

Based on the data provided by the City of Jacksonville, there are approximately **2,969 miles** of roadway classified as local and publicly maintained by the city. Of these roadways, **less than 4% (101.8 miles)** currently have a posted speed limit of 20 mph or less.

Approximately 92% of the roadways have a posted speed limit of 25 mph. The remaining speed limits range from 30 mph to 55 mph.

Posted Speed Limit Distribution				
Posted Speed	Length	%		
20 mph or less	101.9 miles	3.4%		
25 mph	2,715.2 miles	91.5%		
30 mph	9.1 miles	0.3%		
35 mph	107.0 miles	3.6%		
40 mph	6.9 miles	0.2%		
45 – 55 mph	28.5 miles	1.0%		
Total	2,968.6 miles	100.0%		

Candidate Roadways

A candidate roadway is defined as a roadway with the

potential to reduce the speed limit to 20 mph. Candidate roadways are identified as those that are currently signed as **25 mph and 30 mph roadways.** This includes a total of 2,715.2 miles of roadway encompassing **92% of study area roads.**

The roadways with higher speed limits (35 mph and above) are distributed along spine and collector roads and were not considered candidate roads.

Crash Analysis

Crash data was obtained from the Signal Four Analytics database (S4) for the most recent five-year period (2018-2022) for study area roadways.

To focus on crashes relevant to this speed reduction study, crashes were filtered to those classified as involving speeding or aggressive driving on roadways with a posted speed of 25 or 30 mph.

The analysis results indicated that there were no distinct crash trends occurring. Crashes are steadily distributed on residential roads throughout the city. This fact highlights the need for a city-wide 20 mph speed limit policy rather than specific targeting of an area which could be less effective.

Speeding-Related Crash Heat Map





Literature Review

An academic literature review was conducted to document the latest trends and research on lowering speed limits in residential areas. This literature review consisted of three elements: speed limit reduction studies, *20 is Plenty* campaigns from cities throughout the country, and speed limit guiding documents from FDOT, FHWA, ITE, and NACTO. The overall findings that resulted from the literature review are summarized below.



Public Involvement

The public involvement process for this study featured an online survey. The survey was live for four months (May 2023 through August 2023). The overall findings from the survey are displayed below. Further details regarding the public involvement element of this study are provided in **Section 3.0 Public Involvement**.







To reach the goal of reducing serious injuries and fatalities caused by speeding, a *Speed Reduction Action Plan* was developed consisting of **8 Action Items.**

These Action Items were developed using: the *Safe Systems Approach*, recommendations gathered from the speed limit guiding documents detailed in the literature review, and from implementation strategies used in other cities across the country that were either part of *20 is Plenty* initiatives or *Vision Zero Action Plans*.

More details for each Action Item are provided in Section 4.0 Speed Reduction Action Plan.





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Road Map to Safe Speeds

Further, a roadmap for implementation was developed that provides a comprehensive framework to effectively reduce speeds on residential roadways. This roadmap provides a visualization of each Action Item represented by a mile marker to demonstrate the recommended route the city should take in order to successfully implement, enforce, and monitor a city-wide 20 mph speed limit.







1.0 Introduction

1.0 INTRODUCTION

The City of Jacksonville was **ranked the sixth most dangerous metropolitan area in the United States for people walking** between 2016 and 2020⁶ and is designated as a focus city in terms of safety for pedestrians by the Federal Highway Administration (FHWA) due to a higher-than-average rate of pedestrian fatalities.

It has been well documented by leading transportation authorities that **reducing speed limits** *alone* increases safety by lowering the intensity and frequency of crashes⁷. Further, local roads are the most vulnerable of all road types to speed-related incidents and have the highest speed-related fatalities when compared to all

other road types⁸.

In an effort to address these statistics, the City of Jacksonville investigated the impact of reducing the speed limit on all residential streets to 20 mph through this 20 is Plenty Residential Speed Reduction Study ('20 is Plenty'). By applying foundational elements from the FHWA's Safe Systems Approach, the 20 is Plenty Speed Reduction Study resulted in a set of **Action Items** to be deployed by the city that not only includes reducing the residential speed limit, but also specifies policy revisions, traffic calming treatments, and enforcement strategies that have been demonstrated to effectively increase the safety of roadways across the country.



1.1 Study Area

The study area includes the residential roads within the City of Jacksonville. Roadways that have a classification of "Local" and "Publicly Maintained" (not private streets) were selected. There are nearly 2,970 miles of applicable roadway within the study area. Currently, **less than 4% (102 miles) of these roadways have a posted speed limit of 20 mph or less**⁹.

1.2 Study Purpose

The purpose of this study is to conduct a speed reduction analysis for the City of Jacksonville to achieve the following objectives:



- ⁶ Dangerous by Design, Metro-area rankings and data, Smart Growth America, 2022.
- ⁷ Speed Zoning: For Highways, Roads, and Streets in Florida
- ⁸ Speed as a Safety Problem, Institute of Transportation Engineers (ITE), 2019
- ⁹ Local Roads shapefile obtained from the City of Jacksonville, 2023.



1.3 Study Background: Why Lower Residential Speed Limits?

Addressing speed is fundamental to making streets safer¹⁰. It has been well documented that a reduction in speed can drastically increase the likelihood of survival following a crash^{10,11}: Guiding documents related to lowering residential speed limits have been released from major transportation authorities including Florida Department of Transportation (FDOT)¹², FHWA ¹³, Institute of Transportation Engineers (ITE¹¹), National Association of City Transportation Officials (NACTO¹⁰), and the Vision Zero Network¹⁴. These documents reached the following main conclusions:





Pedestrian fatality rate after being hit by a car¹¹.

Driver's field of vision based on speed¹¹.

¹⁴ Safety Over Speed: Managing Speed for Safety, Vision Zero Network, 2023



¹⁰ <u>City Limits: Setting Safe Speed Limits on Urban Streets</u>, National Association of Transportation Officials, (NACTO), 2020

¹¹ <u>Speed as a Safety Problem</u>, Institute of Transportation Engineers (ITE), 2019

¹² Speed Zoning: For Highways, Roads, and Streets in Florida, FDOT, 2018

¹³ <u>Appropriate Speed Limits for All Road Users</u>, FHWA, 2023

1.4 Are Other Cities Lowering Speed Limits?

From a nationwide perspective, lowering speed limits on local roads in residential areas has been a relatively new trend and is increasing in popularity. Most speed limit reductions were the result of *Vision Zero Action Plans*.

One of the earliest city-wide speed limit reductions to 20 mph was in Seattle, Washington in 2016 followed by Cambridge, Massachusetts and Portland, Oregon codifying policies in 2018. Some of the more recent cities to adopt speed reduction policies include Denver, Colorado in 2023 and Tacoma, Washington and Salt Lake City, Utah in 2022.

Seventeen example cities are listed that have implemented city-wide 20 mph speed limits on local roads below.

- Seattle, Washington (2016)
- Cambridge, Massachusetts (2018)
- Portland, Oregon (2018)
- Eugene, Oregon (2020)
- Minneapolis, Minnesota (2020)
- Saint Paul, Minnesota (2020)
- Washington, DC (2020)
- Falcon Heights, Minnesota (2021)
- Fayetteville, Arkansas (2021)
- Madison, Wisconsin (2021)
- Norfolk, Virginia (2021)
- Tigard, Oregon (2021)
- Falls Church, Virginia (2022)
- Golden, Colorado (2022)
- Salt Lake City, Utah (2022)
- Tacoma, Washington (2022)
- Denver, Colorado (2023)

Vorbars changing a speed limit sign in Seattle

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Workers changing a speed limit sign in Seattle, WA. Photo Source: Seattle Government website.

1.5 Is it Possible to Lower the Speed Limit to 20 mph in Jacksonville?

In terms of local legislation, the City of Jacksonville has enacted Ordinance 2014-666-E (Section 804.406 of the Jacksonville Ordinance Code). Through this ordinance, a group of residents or a homeowner's association (HOA) can petition the City of Jacksonville for a reduction of speed on local roads from the default speed limit of 30 mph to a maximum speed limit of 20 or 25 mph.

Criteria that need to be met to allow for a reduction in speed include: the city council member is contacted to have a public meeting, 75% of property owners that are impacted are in agreeance, and the speed reduction is found to be reasonable based on an engineering and traffic investigation.

The neighborhood that petitions for the reduction in speed must share half of the cost with the city. Speed limit signs cost \$280 per sign.





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1.6 Safe Systems Approach

FHWA's Safe Systems Approach for setting local speed limits has been unanimously recommended by leading transportation agencies including FDOT, ITE, NACTO, and the Vision Zero Network. The Safe Systems Approach was used as the primary guiding document for the 20 is Plenty study process.

What is the Safe Systems Approach?

FHWA has adopted a Zero Deaths vision which states that even one death on the transportation system is unacceptable¹⁵. To reach this vision, FHWA developed the Safe

Systems Approach with the goal of eliminating fatal and serious injuries for all road users. It works by building and reinforcing multiple layers of protection to **both prevent** crashes from happening in the first place and minimize the harm caused to those involved when crashes do occur. It is a comprehensive approach that provides a guiding framework to make places safer for people. The following principals are included:

- Death and Serious Injuries are Unacceptable
- Humans Make Mistakes
- Humans Are Vulnerable
- Responsibility is Shared
- Safety is Proactive
- Redundancy is Critical

The elements of the Safe Systems Approach are displayed in Figure 1-1 Safe System Elements. The Safe Speeds Element highlights the approach that safe speeds can increase human survivability of a crash.

Figure 1-1 Safe System Elements

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Safe Road Users

The Safe System approach addresses the safety of all road users, including those who walk, bike, drive, ride transit, and travel by other modes.



Vehicles

Safe

Vehicles are designed and regulated to minimize the occurrence and severity of collisions using safety measures that incorporate the latest technology.

Source: FHWA Safe System Brochure, 2022



Safe Speeds

Humans are unlikely to survive high-speed crashes. Reducing speeds can accommodate human injury tolerances in three ways: reducing impact forces. providing additional time for drivers to stop, and improving visibility.

Safe Roads

Source: FHWA

Designing to accommodate human mistakes and injury tolerances can greatly reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through site, traffic incident a space, and alerting users to hazards and other road users.



RESPONSIBILITY IS SHARED

DEATHISERIOUS INJURY IS UNACCEPTABLE

Post-Crash Care

When a person is injured in a collision, they rely on emergency first responders to quickly locate them, stabilize their injury, and transport them to medical facilities. Post-crash care also includes forensic analysis at the crash management, and other activities.



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How is the Safe Systems Approach Implemented?

To implement the *Safe Systems Approach*, FHWA has developed the *Safe System Roadway Design Hierarchy*, a tool that characterizes **engineering and infrastructure-based countermeasures** and strategies that align with the goal of the *Safe Systems Approach* (see **Figure 1-2**). The hierarchy helps **identify and prioritize countermeasures** and strategies when developing transportation projects. The *Safe System Roadway Design Hierarchy includes four tiers*. This study focuses on **Tier 2**, which is reducing vehicle speeds. **Section 4.0** of this report identifies and describes a number of different countermeasures that could be implemented in Jacksonville that address this tier and move toward the overall goal of eliminating deaths and serious injuries due to vehicle crashes.

Figure 1-2 Safe System Roadway Design Hierarchy



Tier 2: Reduce Vehicle Speeds

Implementing design features and speed management strategies to reduce vehicle speeds effectively reduces the kinetic energy involved in a crash should it occur. Appropriate speed limits should be set to reduce the significant risks drivers impose on others—especially vulnerable road users—and on themselves. To achieve desired speeds, agencies often implement other speed management strategies concurrently with setting speed limits, such as self-enforcing roadways, traffic calming measures, and speed safety cameras.



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1.7 Study Process

The study process consisted of four main elements:

- Data Collection and Analysis: Consisted of a posted speed limit inventory, crash analysis, and literature review.
- **Public Outreach:** Featured an online public survey that yielded over 2,600 participants.
- Speed Reduction Methods: Identified methods to reduce roadway speeds including lowering the speed limit by changing the posted signs and applicable traffic calming treatments.
- Speed Reduction Strategy Roadmap: The study recommendations were synthesized into an implementation roadmap displaying action items including policy revisions and enforcement strategies.

1.8 Report Organization

The report is organized into the following sections:

- Executive Summary: Provides a concise synopsis of the study process and results,
- Section 1.0 Introduction: Establishes the study purpose, background, process, and outcomes.
- Section 2.0 Data Collection: Details the data collection and analysis elements of the study including findings reached throughout the process.
- Section 3.0 Public Outreach: Summarizes the public involvement element of the study and presents the results of the online survey.
- Section 4.0 Speed Reduction Methods: Reviews the proven speed reduction methods identified during the study.
- Section 5.0 Final Thoughts: Provides the closing statement for the study and an implementation table for the Action Plan.





Workers replacing speed limit signs in Portland, OR. Photo Source: <u>Portland.gov</u>





2.0 Data Collection and Analysis

2.0 DATA COLLECTION AND ANALYSIS

A data collection and analysis process was developed to achieve Objective 1 of the study, which is to evaluate the effectiveness of lowering the residential speed limit. This process was three-fold and included the following elements:



Section 2.1 Posted Speed Limit Inventory: Established the base data for the study by providing an inventory of the current posted speed limits along the roadways included in the study (local, publicly maintained roads).



Section 2.2 Crash Analysis: A crash analysis was performed from the most recent five years of available data (2018-2022). To focus on crashes relevant to a speed reduction study, crashes were filtered to those classified as involving speeding or aggressive driving on public, residential roadways with a posted speed limit of 25 or 30 mph.



Section 2.3 Literature Review: An academic literature review was conducted to document the latest trends and research on lowering speed limits in residential areas. The literature review included recent speed limit reduction studies, other *20 is Plenty* campaigns from across the country, and speed limit guiding documents from leading transportation agencies.

Data Collection and Analysis Findings

A summary of the findings from the data collection and analysis process is provided below.





2.1 Posted Speed Limit Inventory

Based on the data provided by the City of Jacksonville, there are approximately 2,969 miles of roadway classified as local and publicly maintained by the city¹⁶. Of these roadways, less than 4% (101.8 miles) currently have a posted speed limit of 20 mph or less. **Table 2-1** displays the posted speed limit distribution.

Approximately 92% of the roadways have a posted speed limit of 25 mph. The remaining speed limits range from 30 mph to 55 mph.

Candidate Roadways

For the purposes of this study, a **candidate roadway** is defined as a roadway with the potential to reduce the speed limit to 20 mph.

Candidate roadways are identified as those that are currently signed as **25 mph and 30 mph** and are residential in nature. This includes a total of 2,715.2 miles of roadway encompassing 92% of study area roads.

Table 2-1 Posted Speed Limit Distribution

Posted Speed	Length	Percent	
20 mph or less	101.9 miles	3.4%	
25 mph	2,715.2 miles	91.5%	
30 mph	9.1 miles	0.3%	
35 mph	107.0 miles	3.6%	
40 mph	6.9 miles	0.2%	
45 mph	26.5 miles	0.9%	
55 mph	2.0 miles	0.1%	
Total	2,968.6 miles	100.0%	

The roadways with higher speed limits (35 mph and above) are distributed along spine and collector roads and were not considered candidate roads.



Local road signed at 25 mph. Photo source: Project Team.

¹⁶ Local Roads shapefile obtained from the City of Jacksonville, 2023.



2.2 Crash Analysis

Crash data was obtained from the Signal Four Analytics¹⁷ database (S4) for the most recent five-year period (2018-2022) for study area roadways. To focus on crashes relevant to this speed reduction study, crashes were filtered to those classified as involving speeding or aggressive driving on roadways with a posted speed of 25 or 30 mph. **Figure 2-1** displays a heat map of the speeding-related crashes across the study area. As illustrated in **Figure 2-1**, no distinct crash trends are occurring. Crashes are steadily distributed on residential roads throughout the city. This fact reiterates the need for a city-wide 20 mph speed limit rather than specific targeting of an area which could be less effective.

A summary of the general crash trends is described below. The complete crash data is provided in **Appendix A**.

- There were **347 total speeding-related crashes** on roadways with a posted speed limit of 25 or 30 mph in the City of Jacksonville.
- Of these crashes, 12 resulted in fatalities (3%) and 13 caused serious injuries (4%). Most of the fatalities were vehicle-to-vehicle fatalities (8 of the 12 fatalities). Three of the fatalities involved either a utility pole, tree, or ditch. One fatality involved a pedestrian.
- Approximately half of the crashes (51%) resulted in property damage only.
- The most common crash type was **Off Road** comprising 46% of the crashes.
- There were four pedestrian crashes and no bicycle crashes.



Figure 2-1 Speeding-Related Crashes Heat Map

¹⁷ <u>Signal Four Analytics</u> is an interactive, web-based system designed to support the crash mapping and analysis needs of law enforcement, traffic engineering, transportation planning agencies, and research institutions in the state of Florida.



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Crash Severity

Approximately half of the crashes (51%) resulted in no injuries and 41% caused injury. There were 12 crashes that resulted in a fatality (3%) and 13 crashes that caused serious injury (4%).



Crash Type

The most common crash type was Off Road at 46%, Other common crash types were Other (16%), Rear End (14%), and Angle (8%).

Crash Year

The number of speed-related crashes per year ranged between 52 crashes to a peak of 80 crashes in 2018. Nearly half of the crashes (45%) occurred in either 2018 or 2021.



Intersection Type

Over half of the crashes (58%) did not occur at an intersection. Approximately 39% of the crashes occurred either at a four-way intersection (20%) or a T-intersection (19%).





2.3 Literature Review

An academic literature review was conducted to document the latest trends and research on lowering speed limits in residential areas. This literature review consisted of three elements:

- **Speed Limit Reduction Studies**: Reviewed a selection of four speed reduction studies from across the country to determine lessons learned from jurisdictions that have implemented lower residential speed limits within the past five years.
- **20 is Plenty Campaigns**: Reviewed *20 is Plenty* campaigns from cities throughout the country to document nationwide best practices and trends.
- **Speed Limit Guiding Documents**: Reviewed guiding documents from FDOT, FHWA, ITE, and NACTO to synthesize speed reduction techniques and recommendations from leading transportation agencies.

Overall Findings

The overall findings that resulted from the literature review are summarized below. These findings were used as the foundation for the development of speed reduction strategies, recommendations, and the implementation roadmap further detailed in this report.



Lowering the speed limit ALONE increases safety.



Increasing sign density is the **top implementation strategy** for lower speed limits and crash reduction.



Local roads are the most vulnerable to speed-related incidents.



Lowering the speed limit coupled with other strategies such as traffic calming, education, and outreach efforts further increases safety.





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Speed Reduction Studies

A total of four speed reductions studies were reviewed and are listed below. All studies were published in the last five years (between 2019 and 2021). An overview of each study is provided including a summary of relevant findings and recommendations.

- Denver Vision Zero: Speed Limit Reduction Feasibility Study (Denver, Colorado; 2021)
- Saint Paul Speed Limit Evaluation (Saint Paul, Minnesota; 2020)
- Speed Limit Case Studies (Seattle, Washington; 2020)
- Speed Reduction Feasibility Study (Nashville, Tennessee; 2019)

Speed Reduction Studies Findings Findings for the studies are displayed below.

Lower Speed Limit	 A lower speed limit increases safety. A 20 or 25 mph speed limit is recommended on all local streets. 	
Sign Changes	 Changing speed limit signs alone has proven to lower vehicle speeds. 	
Top Impleme- ntation Strategy	 Increasing sign density. 	
Other Impleme- ntation Strategies	• Education and outreach campaigns, enforcement efforts, speed feedback signs, traffic calming.	



New lower speed limit sign in Seattle, Washington. Photo Source: Speed Limit Case Studies, Seattle (2020).

When Seattle DOT signed streets for 25 mph (previously 30 mph), data showed **total crashes declined**, **injury crashes declined**, **50**th **percentile speeds declined**, and **high-end speeding declined** for **every location** reviewed. *Seattle Case Studies (2020).*



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Speed Reduction Studies Summaries

Denver Vision Zero: Speed Limit Reduction Feasibility Study (2021) **Study Overview**: Evaluates speed limit reduction strategies and recommends implementation options for the City of Denver.

Relevant Recommendations:

- A 20 mph speed limit on neighborhood streets citywide.
- Increase the frequency of speed limit signs to achieve a target density of one speed limit sign approximately every 0.25 miles.
- Add speed feedback signs to neighborhood streets.
- Run an education and outreach campaign for speed reduction.

Saint Paul Speed Limit Evaluation (2020)

Study Overview: A technical evaluation to assess and determine safe speed limits on city streets.

Relevant Recommendations:

- A 20 mph speed limit on minor (local) streets citywide.
- Implementation methods: installing new signs, traffic signal retiming, enforcement efforts, and education campaigns.
- Evaluate effects within three years of implementation.

Speed Limit Case Studies, Seattle, Washington (2020)

Study Overview: Evaluates recent changes to Seattle DOT's approach to speed management.

Relevant Findings:

• Lowering speed limits and increasing sign density alone (absent any marketing campaigns, additional enforcement, retimed signal progressions, or engineering changes) resulted in **lower speeds** and fewer crashes.

Speed Reduction Feasibility Study, Nashville, Tennessee (2019) **Study Overview**: Analyzes reducing the speed limit from 30 mph to 25 mph on all locally classified streets.

Relevant Recommendations:

- A **25 mph speed** limit on **all local streets** within the Urban Services District.
- **Sign replacement strategy**: Replaced signs in phases over one year based on council district. Focused on central, urbanized districts and expanded outward from there.
- Implementation strategy: Focused on education, engineering, and enforcement.









20 is Plenty Campaigns

For comparison purposes, *20 is Plenty* campaigns were examined across the country to identify best practices in the *20 is Plenty* movement.

The following four (4) campaigns were identified and reviewed:

- 20 is Plenty, Eugene, Oregon (2020)
- 20 is Plenty, Tigard, Oregon (2021)
- 20 is Plenty, Tacoma, Washington (2022)
- Slow Down Dublin, Dublin, Ohio (2022)

20 is Plenty Campaign Findings

Findings for the campaigns are displayed below.



20 is Plenty yard sign. Boulder, CO. Photo Source: communitycycles.org (2020).



(2020).



20 is Plenty Campaign Summaries

20 is Plenty: Eugene, Oregon (2020) Key Takeaways:

- Reduced speed limits on residential roadways from 25 mph to 20 mph as part of Vision Zero Action Plan.
- Changed signs in a **phased approach**. The new speed limit legally went into effect on each street when the existing signs were replaced.
- Included a community outreach campaign to inform community of the change and educate them on the relationship between speed and transportation safety.
- Distributed *20 is Plenty* **lawn signs** (1,425 signs total). Lawn signs were requested via online form and sign pick-up events were held.

Slow Down Dublin: Dublin, Ohio (2022) **Key Takeaways**:

- Used a data-driven approach to speed management.
- Stated community partnership and engagement is essential.
- **Speed management toolbox**: car magnets, vinyl stickers, yard signs, speed lasers, police ride-alongs, speed concern reporting.
- Maintains a speed management and enforcement dashboard detailing speed trailers and speed feedback sign locations, speed survey results, monthly speeding citations issued, fatal and serious injury crashes, and total monthlu traffic stops.
- Adopted a city-wide speed management program.

20 is Plenty: Tigard, Oregon (2022) **Key Takeaways**:

- Reduced speed limits on residential roadways from 25 mph to 20 mph in 2021.
- The program includes 125 miles of streets.
- Estimates one year to change all signs.
- Free yard signs provided for residents to show support. Signs are available for pick-up at the city permit center.

20 is Plenty: Tacoma, Washington (2022) **Key Takeaways**:

- Reduced speed limits on residential roadways from 25 mph to 20 mph in 2022.
- Provides free yard signs at city hall to spread awareness of new speed limits.







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Speed Limit Guiding Documents

Guiding documents regarding setting safe speed limits have been published by FDOT, FHWA, ITE, and NACTO. These documents were reviewed to collect data-driven evidence for the benefits of reducing the speed limit to 20 mph on residential streets. The following documents were reviewed:

- Appropriate Speed Limits for All Road Users, FHWA, 2023
- City Limits: Setting Safe Speed Limits on Urban Streets, NACTO, 2020
- Speed as a Safety Problem, ITE, 2019
- Speed Zoning: For Highways, Roads, and Streets in Florida, FDOT, 2018

Speed Limit Guiding Document Findings

Findings for the speed limit guiding documents are displayed below.

Reducing Posted Speed Alone is Impactful	• Speed limit changes alone can lead to measurable declines in the frequency and severity of crashes.	15 mph
Lower Speeds are Safer	• Higher speeds result in higher fatality rates. Lower speeds result in lower fatality rates.	
Local Roads are More Vulnerable	 The percentage of speed- related fatalities is highest on local road types. 	Driver's field of vision based on speed: Source. Speed is a Safety Problem, ITE, 2019.
Speed Management Strategies	• Reducing speeds also involves roadway design, regulation, enforcement, and outreach.	Drivers traveling at higher speeds have a narrower field of vision , making it more difficult to see
Safe Systems Approach	 The Safe Systems approach for setting speed limits was unanimously encouraged. 	and react to people and vehicles in the roadway.



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Speed Limit Guiding Document Summaries

Appropriate Speed Limits for All Road Users, FHWA

Overview: Provides safety benefits, application examples, and considerations for setting appropriate speed limits.

Findings:

- Speed control is one of the most important methods for reducing fatalities and serious injuries.
- Speed is especially important on non-limited access roadways where vehicles and vulnerable road users mix (i.e., local streets).
- A driver traveling **30 mph who hits a pedestrian has a 45% chance** of killing or seriously injuring them. This drops to **5% at 20 mph**.
- Speed limit changes alone can lead to measurable declines in speeds and crashes.
- Traffic fatalities in Seattle, WA decreased by 26% after the city implemented speed management strategies and countermeasures, including reducing the speed limits on all non-arterial streets to 20 mph.
- Encourages the Safe Systems Approach when setting speed limits.
- To achieve desired speeds, agencies often implement other speed management strategies concurrently with setting speed limits including self-enforcing roadways, traffic calming, and safety cameras.

City Limits, Setting Safe Speed Limits on Urban Streets (NACTO)

Overview: Provides municipalities with guidance on how to strategically set speed limits on urban streets using the *Safe Systems* Approach.

Findings:

- Reducing vehicle speed reduces the frequency and severity of traffic crashes.
- Reducing speeds involves design and regulation.
- People tend to decide how fast they drive based on the design of the roadway and other cues such as posted speed limit signs and the speed other drivers are traveling.
- Lowering speed limits alone has a dramatic impact on lowering fatalities.
- The Safe Systems Approach is the guiding philosophy behind safer streets.
- A 5 mph increase in the maximum speed limit is associated with an 8% increase in the fatality rate on interstates and freeways and a 3% increase on other roads.
- Small reductions in speed result in large safety gains.
- Local streets are more impacted due to different types of road users sharing the space and interacting frequently.









Speed as a Safety Problem (ITE)

Overview: A resource provided by ITE describing speed in relation to safety, vision zero, and road users.

Key Findings:



FDOT

- Speed is a safety problem. Crash severity increases as vehicle speed increases, especially for non-motorized users.
- The percentage of speed-related fatalities is highest on local road types compared to all other road types.
- A core element of Vision Zero is creating safe speeds for specific road context.
- The survival rate for a pedestrian being hit at 40 mph is 20%. When this is compared to a vehicle traveling at 20 mph, the likelihood of survival for a pedestrian increases to approximately 90%.
- Speeding-related crashes involving a bicycle or pedestrian occurred most often on local roads, on roads between 30 to 35 mph, and on non-intersection points of the road.

Speed Zoning: For Highways, Roads, and Streets in Florida (FDOT) **Overview**: Provides guidelines and recommended procedures for establishing uniform speeds on municipal, county, and state roads within Florida.

Findings:

- The default speed limit on Florida residential roadways is 30 mph.
- Local municipalities can set their own maximum speed limit for local streets as long as an engineering and traffic investigation determines the change in speed is reasonable and conforms to criteria set forth by the FDOT.
- The preferred way of determining speed limits is to use the 85th Percentile method¹⁸.
- When the mean speed of traffic is reduced, the number of crashes and the severity of injuries almost always goes down.
- The relationship between speed and crash risk can be modified to some extent by road environment and driver behavior.
- A change in speed limit almost always changes the mean speed of traffic.
- It is evident that lowering the speed limit will reduce crash risk.
- Within residential districts, a municipality may set a maximum speed limit of 20 mph on local streets.

¹⁸ <u>Florida Statute 316.189</u>, "Establishment of municipal and county speed zones. (1) Municipal Speedthe maximum speed within any municipality is 30 miles per hour. With respect to residence districts, a municipality may set a maximum speed limit of 20 or 25 miles per hour on local streets and highways after an investigation determines that such a limit is reasonable. It shall not be necessary to conduct a separate investigation for each residence district."





3.0 Public Involvement

3.0 PUBLIC INVOLVEMENT

Public involvement is a crucial element in any planning process. The public involvement process provides residents the opportunity to have their voices heard and to be included in the decision-making process.

For this study, a survey was developed and administered online via *SurveyMonkey* and hosted on its own webpage **20isplentyjax.com**. The survey was promoted both digitally and physically through promotional postcards (right) and web-based platforms.

The survey received a notable **2,619 responses** during the four months it was live (May 2023 through August 2023). The survey consisted of 10 questions (five geodemographic questions, three Likert scale questions, and two open-ended questions).

The overall findings of the survey are provided below.



Responses are summarized in further detail in this section. The full survey results and questions are available in **Appendix B**.





Q1: Responses by Zip Code

Survey respondents were asked to provide the zip code of their residence to better understand the location and distribution of responses. The graphic to the right shows the five largest zip codes by response rate.

The geographic distribution of these results shows that the **survey reached a wide range** of geographic locations across the City of Jacksonville.



Q2: Pedestrian Safety in Neighborhoods

Respondents were asked to "check all the apply" to five common concerns for pedestrian safety in residential neighborhoods.

"Speeding" was the most selected response with 2,130 responses (81%). "Other" was the second most selected response item with 820 responses (31%).

Other responses include "not enough sidewalks" with 544 responses (21%), "crosswalks aren't marked" with 372 responses (14%), "pedestrians aren't using crosswalk" with 268 responses (10%), and "no concerns" with 176 responses (7%).

Over **80%** of respondents are **concerned about speeding and pedestrian safety** in neighborhoods.





Residential Speed Limit Reduction Study | 2024

Q3: Active Travel

Participants were asked to answer how likely they are to take up active travel (such as bicycling or walking) upon the reduction of speed limits on residential streets.

The majority of respondents (66%) reported that they were **"very likely" or "likely" to engage in active transport** if speed limits were reduced.

Approximately 22% of the respondents indicated they were **"neither likely nor unlikely"** to use active travel if speed limits were reduced.

Approximately 12% of respondents either were "unlikely" or "very unlikely" to use active travel after speed reduction.

Q4: Lower Speed Limits

Respondents were asked to rate how strongly they felt about the lowering of speed limits on all local residential streets to 20 mph.

The majority (80%) of respondents reported that they either "strongly agree" (64%) or "agree" (16%) with the residential speed limit reduction.

Approximately 13% either "disagree" (6%) or "strongly disagree" (7%) with the lower speed limit.

The remaining 7% selected that they "neither agree nor disagree" with the lower speed limit.





Q5: Potential to Reduce Crashes

Approximately **80% of respondents reported** that they believe that **lowering speed limits in residential areas** would cause a **reduction in crash likelihood and severity** while 20% disagreed with the statement.

Concerns and Suggestions

At the conclusion of the survey, respondents were asked to provide any additional thoughts about their neighborhood's traffic safety issues and approximately **1,773** write-in comments were provided. Below are some of the most frequently mentioned topics:









4.0 Speed Reduction Action Plan

4.0 SPEED REDUCTION ACTION PLAN

To reach the goal of reducing serious injuries and fatalities caused by speeding within the City of Jacksonville, a *Speed Reduction Action Plan* was developed consisting of **8 Action Items**. These Action Items were developed based on the **five Es of traffic safety** incorporated in the *Safe Systems Approach* (**equity, engineering, education, enforcement, and emergency medical services**), along with recommendations gathered from the speed limit guiding documents detailed in the literature review, and from implementation strategies used in other cities across the country that were either part of *20 is Plenty* initiatives or *Vision Zero Action Plans*.

More details for each **Action Item** are provided in this section of the report. Further, a roadmap for implementation was developed and is displayed on the following page (**Figure 4-1**). This roadmap, which is titled the *Speed Reduction Action Plan: A Roadmap to Safe Speeds on Local Roads,* provides a visualization of each Action Item represented by a mile marker to demonstrate the recommended route the city should take in order to successfully implement, enforce, and monitor a city-wide 20 mph speed limit.

Finally, an implementation plan providing short-, medium-, and long-term time frames for each Action Item is provided in **Section 5.0 Next Steps**.





Figure 4-1 Speed Reduction Action Plan Roadmap







Action Item 1: Adopt a city-wide policy mandating a 20 mph speed limit on all residential roads

The first Action Item is to adopt a city-wide policy which mandates a 20 mph speed limit on all residential roads.

This Action Item includes:

- Adopting an ordinance reflecting the following changes to existing local policies:
 - A text amendment to the City of Jacksonville Traffic Code (specifically, Sec. 804.402 of the Jacksonville Code of Ordinances) adopting the 20 mph speed limit on residential roads.
 - A text amendment adding the city-wide speed limit to the Transportation Element of the Comprehensive Plan.



Example Ordinance Language:

- Seattle, WA: Subject to <u>Section 11.52.020</u>, and except in those instances where a different maximum lawful speed is provided by this Subtitle I or otherwise, no person shall operate any vehicle at speed in excess of twenty (20) miles per hour on any non-arterial street¹⁹.
- Portland, OR: The City of Portland establishes by ordinance a designated speed [of 20 miles per hour] on non-arterial streets under the jurisdiction of the City of Portland in a residence district²⁰.
- Salt Lake City, UT: On all Streets and at all places the prima facie speed limit shall be twenty (20) miles per hour, except on such other streets or places as otherwise posted or marked as directed by the city transportation engineer²¹.
- Fayetteville, Arkansas: Where no special hazard exists, speeds of 20 miles per hour in any residential or business district shall be lawful, but any speed in excess of such limits shall be prima facie evidence that the speed is not reasonable or prudent and that it is unlawful²².

²² <u>Fayetteville, Arkansas Code of Ordinances Sec. 71.065</u>, Full adopted ordinance (Ordinance 6488) with council findings is provided in **Appendix C.**



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¹⁹ <u>Seattle, Washington Municipal Code Sec. 11.52.060</u>

²⁰ Portland, Oregon Ordinance 188774. Full adopted ordinance with council findings provided in **Appendix C.**

²¹ Salt Lake City, Utah Code of Ordinances, Sec. 12.36.020.3

4.2 Action Item 2: Sign Implementation Strategy

Action Item 2: Develop a sign implementation strategy for systematically installing new speed limit signs and increasing sign density (as needed) across the city.

According to Florida Statute, new speed limits **do not take effect until the zone is posted** by the authority changing the speed²³. Therefore, it is paramount that the City of Jacksonville develop a sign implementation strategy once the speed limit policy has been adopted.

The sign implementation strategy will focus on accomplishing two goals: replacing existing signs and increasing sign density. It has been found that **lowering speed limits and increasing sign density alone** (absent any marketing campaigns, additional enforcement, retimed signal progressions, or engineering changes) resulted in **lower speeds and fewer crashes**²⁴.

Lowering speed limits and increasing sign density alone results in lower speeds and fewer crashes. - Speed Limit Case Studies, Seattle, WA

- Sign Replacement Strategy: Develop a sign replacement strategy that best works for the City of Jacksonville. City-wide sign replacement is completed within one to three years in other cities²⁵. For example, the city of Nashville replaced their signs in phases over one year based on council district focusing on central, urbanized districts and expanding outward²⁶.
- Increasing Sign Density: Establish a target sign density to spread driver awareness of the lower speed limit. An example goal sign density is one sign per every 0.25 miles (Denver, CO²⁷).

Sign Replacement Costs

The cost for implementation of new speed limit signs is estimated at **\$190 per sign** and includes installation²⁸. All identified **2,715 miles of candidate roadways** (those roadways that are currently 25 mph or 30 mph and in a residential area) were included in the calculation. An assumption of the new sign spacing of 0.33 miles was utilized (8,200 signs). Overall, the total estimated cost to replace existing signs and increase sign density is \$1.6 million.



²³ Florida Statute 3.16.189 (3) Posting of Speed Limits

²⁴ Speed Limit Case Studies, (Seattle; 2020).

²⁵ <u>Denver, CO</u>: Plans to replace 2,000 signs over a "few years". <u>Eugene, OR</u> replaced the signs within "fall 2020" (number of signs were not included). <u>Tigard, OR</u> estimated one year to replace signs.

²⁶ Speed Reduction Feasibility Study, (Nashville, Tennessee; 2019).

- ²⁷ Denver Vision Zero: Speed Limit Reduction Feasibility Study (Denver, Colorado; 2021).
- ²⁸ Costs provided by City of Jacksonville staff.



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4.3 Action Item 3: Traffic Calming Measures

Action Item 3: Implement traffic calming countermeasures in strategic areas that exhibit higher speeds on residential roads.

The *Safe Systems Approach* recommends implementing design features and speed management strategies as a method of reducing vehicle speed. As such, this section identifies a collection of traffic calming countermeasures and speed reduction strategies that have been shown to be effective in reducing roadway fatalities and serious injuries. The traffic calming countermeasures are listed on the following page in **Table 4-1** Summary of Speed Reduction Countermeasures and further detailed in this section.

The traffic calming measures have been compiled from various sources including FHWA and NACTO. Additionally, a majority of them are recommended by FHWA as part of their **proven safety countermeasures initiative**. These countermeasures were selected because they focus on speed reduction and many of them address multiple safety focus areas such as pedestrian/bicyclist safety.

As part of this Action Item, it is recommended that these countermeasures be strategically implemented on roadways that are experiencing higher speeds on residential roads. These roads will be identified on an as-needed basis, and further study and engineering would need to take place before installing any permanent countermeasures. This Action Item includes the following steps:

Identify target roadways for future study that would be ideal candidates for traffic calming measures. Example methods for roadway identification include resident or using the set of the set of

neighborhood requests, recommendations from a *Vision Zero Action Plan*, or roadways that have a demonstrated need for traffic calming.

- **Conduct** applicable engineering and/or planning **studies** which will identify the appropriate traffic calming method.
- Install recommended traffic calming countermeasures.
- **Evaluate** the effectiveness of the traffic calming countermeasure after at least three months of installation.

Most Recommended Countermeasure

Based on the literature review, the most recommended traffic calming measure consistently throughout the documents reviewed was **speed feedback signs (SFS)**.



Speed feedback sign. Photo Source: <u>radarsign.com.</u>

Coupled with lowering the speed limit and increasing sign density, adding speed feedback signs on neighborhood streets further

increases awareness of current vehicle speeds to the driver, reinforces the posted speed limit, and has been proven effective in other communities²⁹.

²⁹ Denver Vision Zero: Speed Limit Reduction Feasibility Study (Denver, Colorado; 2021), Slow Down Dublin, Spatial Effectiveness of Speed Feedback Signs (FHWA),



Table 4-1 summarizes these countermeasures and provides a level of effectiveness which has been derived from studies in various locations. These countermeasures are described in further detail in this section.

Countermeasure	Effectiveness		
Speed Feedback Signs (SFS)	4 mph speed reduction at SFS locations		
Speed Limit Sign with LEDs	4 mph reduction in 85th percentile speeds		
Vehicle Activated Speed Limit Sign	4-5 mph reduction in 85th percentile speeds		
Speed Safety Cameras	54% reduction in all crashes and 47% reduction in injury crashes (63% reduction in speeding in school zones)		
Medians and Pedestrian Refuge Islands	46% (Median with marked crosswalk) and 56% (Refuge Island) reduction in pedestrian crashes		
Road Diets	19-47% reduction in total crashes for a 4-lane to 3-lane road diet (1-2 mph reduction in 85th percentile speed)		
Lane Width Reduction using Pavement Markings	4 mph reduction in mean speed		
Roundabouts	82% reduction in fatal and injury crashes at converted two-way stop-controlled intersection		
Traffic Circles	4 mph reduction in 85th percentile speeds at the intersection		
Pavement Friction Management	20% reduction in crashes at intersections when placed at intersection approaches		
Speed Humps	5-8 mph reduction 85th percentile speeds		
Speed Cushions	5-7 mph reduction in 85th percentile speeds		
Speed Tables	4-9 mph reduction in 85th percentile speeds		
Raised Pedestrian Crossings	11 mph reduction in mean and 85th percentile speeds		
Raised Intersections	Similar effectiveness to raised crosswalks		
Chocker/Bulb-outs	1-4 mph reduction in 85th percentile speeds		
Neck Downs	3-8% increase in vehicles yielding to pedestrians at intersections		
Chicanes	3-9 mph reduction in 85th percentile speeds		
Center Islands	1-6 mph reduction in 85th percentile speeds		
Transverse Bars	1 mph reduction in 85th percentile speeds		
Converging Chevrons	1-3 mph reduction in 85th percentile speeds		
Optical Speed Bars	1-5 mph reduction in 85th percentile speeds		
Speed Limit XX Pavement Legend	1-2 mph reduction in 85th percentile speeds		
Painted/Decorative Crosswalks	50% reduction in crashes involving pedestrians and a 17% reduction in total crashes		





Speed-Related Signs and Cameras

Speed Feedback Signs (SFSs)

Dynamic speed feedback signs are a type of traffic control device that are used to reduce vehicle speeds, and therefore crashes, by displaying feedback to drivers by showing their actual speed. Studies have shown reductions in 85th percentile speeds in locations where SFSs were deployed.

Speed Limit Signs with LEDs

Speed Limit signs with LEDs bring additional driver attention to standard R2-1 speed limit signs. They are particularly beneficial when placed in areas where speed limits have recently been reduced.

Vehicle Activated Speed Limit Sign

Similar to an SFS, a vehicle-activated speed limit sign will actuate when a vehicle is exceeding the speed limit and display a message such as "Slow Down." Some signs will also display a driver's current speed.

Speed Safety Cameras (SSCs)

Speed safety cameras detect speed and capture photographic or video evidence of vehicles that are violating the speed limit. SSCs can be deployed as a fixed stationary unit at a location, point-to-point units which are multiple cameras that capture speed over a certain distance, or mobile units which are generally in a vehicle or on a trailer. While SSCs have been proven effective, they require policy and legal review to determine if they are authorized within a jurisdiction.



Speed Feedback Sign. Photo Source: County of San Luis Obispo



Speed Limit Sign with LED. Image Credit: Grainger.com



Vehicle Activated Speed Limit Sign. Image Credit: Tapco



Speed Safety Camera. Photo Source: Getty Images

Medians and Pedestrian Refuge Islands

A median is an area that divides opposing lanes of traffic. Medians can be delineated by pavement markings, raised, or islands that separate motorized and non-motorized road users.

A pedestrian refuge island is a median with an area that is intended to help protect pedestrians that are crossing the road. Medians help to reduce vehicle speeds by narrowing travel lanes and improve pedestrian safety by allowing pedestrians to cross one direction of traffic at a time. Medians/refuge islands should be at Pedestrian Refuge Island. least 4 feet wide, but preferably 8 feet for pedestrian comfort.



Image Credit: FHWA



Curb Extensions/Bulb-Outs

Curb extensions, also referred to as bulb-outs, extend the sidewalks into intersection corners, midblock crossings, and/or parking lanes to narrow the roadway and provide additional pedestrian space. Curb extensions enhance pedestrian safety by providing the following benefits:

- Increase pedestrian visibility.
- Shorten crossing distances.
- Slow turning vehicles.
- Visually narrows the roadway.

Raised Crosswalks

Raised crosswalks serve as traffic calming and pedestrian safety measures. According to the <u>FHWA, raised crosswalks</u> <u>have the potential to decrease pedestrian crashes by 45%</u>. They function by extending the sidewalk across the road and bringing vehicles on the roadway to pedestrian level. Raised crosswalks provide the following benefits:

- Slow traffic by functioning as a speed table.
- Increase visibility of pedestrians.
- Improve accessibility by allowing a pedestrian to cross at nearly a constant grade without the need for a curb ramp.



Curb extension example. Image Credit: Richard Drdul



Decorative crosswalk example. Image Credit: www.pedbikeimages.org / Brandon Whyte.

Decorative Crosswalks

Bold colors and creative designs in crosswalks draw more attention to the crossing increasing the safety of the crosswalk. Decorative crosswalks provide the opportunity to promote the local character of the area while increasing safety.



Decorative crosswalk in Jacksonville. Image Credit: Project Team.



Decorative crosswalk in Long Beach. Image Credit: Long Beach Alliance.



Decorative crosswalk in Coral Gables. Image Credit: Project Team.



Speed Tables, Speed Humps and Chicanes

Speed Tables

Speed tables are midblock traffic calming devices from curb to curb. Speed tables are used for roadways that are between 25 and 45 mph.

Speed Humps

Speed humps are similar to speed tables but do not extend from curb to curb. Speed humps can be used to reduce speeds to 15-20 mph.

Chicanes

A chicane adds an extra curve to the road that slows traffic as vehicles slow to navigate the curve. This may be implemented as series of alternating midblock curb extensions or islands that narrow the roadway in which vehicles follow the curving, S-shaped path.







Chicane. Image credit: NACTO

Speed Table. Image credit: NACTO

Speed Hump. Image credit: NACTO

Traffic Circles/Mini Roundabouts

Mini roundabouts are small circles installed within the roadway used to slow traffic and/or direct traffic through an intersection. Other characteristics features and of neighborhood/mini-traffic circles include:

- Encourage lower speeds at minor intersections
- Ideal for non-signalized intersections
- Temporary treatments using flexible delineators may be used to test the impact on traffic calming

They are traditionally installed with plantings for aesthetics but may be installed with traversable curbs without plants so larger vehicles (e.g., emergency vehicles, semitrucks) can easily bypass.



Mini roundabout example. Image credit: NACTO



20 TWENTY PLENTY

4.4 Action Item 4: Enforcement Plan

Action Item 4: Partner with the Jacksonville Sheriff's Office (JSO) to create a residential speed enforcement plan to support the citywide 20 mph speed limit.

Enforcement is one of the five key components of the *Safe System Approach*. According to the National Highway Safety Administration (NHTSA), fair and equitable law enforcement

increases safety of the roadways by preventing, responding to, and expediting scene clearance. In addition, law enforcement officers have the shared responsibility to provide feedback to improve system design and operation based on the officer's experience in responding to crashes³⁰.

Therefore, it is important to form a strong partnership with JSO to enforce lower speed limits to successfully implement the program. NHTSA recommends high visibility enforcement campaigns as successful strategies to support the *Safe System Approach*³⁰.



"Everyone plays a role—from community and advocacy organizations to public safety officials and transportation experts, road users, vehicle designers and developers, law enforcement, and first responders³⁰."

Example Law Enforcement Strategies

- **Fayetteville**, **AR**: Fayetteville Police Department provides a 30-day grace period following a reduction in speed limit before issuing citations for speed violations. Any increase in traffic patrol in residential areas will be complaint-driven via a non-emergency number³¹.
- New York City, NY: Utilized a period of targeted enforcement of the most common moving violations leading to modal conflicts. As a result, speeding summonses issued increased by over 93% from years preceding Vision Zero³².
- **Portland, OR**: Installed safety cameras on streets with high injury rates. At three study intersections, speeding was reduced by 47% to 68% after camera installation³².
- Wheaton, IL: Law enforcement began with the installation of new speed limit signs, which was carried out within a few weeks of council approval of the speed limit reduction ²⁷.

³² Nashville Speed Study, 2019



³⁰ NHTSA's Safe System Approach: Educating and Protecting All Road Users, FHWA; 2022.

³¹ Fayetteville 20 mph Speed Limit Ordinance Amendment <u>website</u>.

4.5 Action Item 5: Public Outreach Program

Action Item 5: Initiate a public outreach program with the goal of informing the public on the new 20 mph policy and educating them about the dangers of speeding.

Education is another one of the five Es of traffic safety and is an important step in implementing a lower speed limit. Therefore, the City of Jacksonville should develop a public outreach program which focuses on two primary elements:

- 1) Inform the public of the new speed limit policy
- 2) Educate them on the relationship between speed and transportation safety.



This program could potentially expand on the existing *20 is Plenty* program and branding developed through this study.

Public Outreach Methods

Following examples from other *20 is Plenty* programs throughout the country, the City of Jacksonville can utilize the following methods for public outreach:

- Free Yard Signs: The number one method for public outreach amongst *20 is Plenty* programs is to provide **free yard signs.** These yard signs allow residents to show their support of *20 is Plenty* and encourage safe driving within their neighborhoods.
- Other Promotional Material: Other 20 is Plenty promotional materials include: car magnets to allow residents to show support while on the road or vinyl stickers that can be attached to cars, water bottles, computers, etc.
- Example Promotional Material Distribution Methods: Yard signs and other marketing materials can be allocated through the distribution methods for yard signs and materials include:
 - Providing them for free pick up at city permit centers, city hall, or libraries
 - O Holding material pick-up events
 - Offering an online form to request signs and materials
- Additional Outreach Methods: The following outreach methods are used by Slow
 Down Dublin (Ohio) initiative:
 - Speed Lasers: Residents can become trained to use a handheld speedmeasuring device and borrow one to measure traffic speeds on a roadway
 - Police Ride-Alongs: Residents can request a ride along with local police to see for themselves how speed is enforced and how data is collected
 - Speed Concern Requests: Residents can request a speed study or report an issue on their street.
 - Speed Management and Dashboard: Provides an online dashboard displaying up-to-date speed data. More detailed steps for implementing a speed management dashboard are provided in *Action Item 4.*.



4.6 Action Item 6: Speed Advisory Committee

Action Item 6: Establish a Speed Management and Safety **Committee** to serve an **advisory role** providing guidance, research, and input from resident sand staff to the Mayor's Office and City Council about speeding on residential streets.

To provide an avenue of communication between elected officials, staff, and residents regarding local speed limits, a Speed Management and Safety Committee should be developed. The purpose of this committee would be to provide insight, expertise, and overall guidance to elected officials before, during, and after the speed management process.

Committee Composition

This committee would be comprised of a hybrid of staff representatives from the Transportation Planning Division of the City of Jacksonville Planning and Development Department, City of Jacksonville Public Works Department, JSO, Jacksonville Fire and Rescue Department (JFRD) and local residents who have volunteered to provide a local perspective to speed management throughout the city.

The Speed Management and Safety Committee would satisfy the **Equity** 'E' of traffic safety by providing a variety of perspectives and representation across the City of Jacksonville. Additionally, the committee would apply to Education 'E' of traffic safety by keeping the elected officials informed of the speed management process and status, successes, and weaknesses of various implementation methods.

Jacksonville City Council, July 1, 2023. Photo source: Jacksonville City Council website.













4.7 Action Item 7: Speed Dashboard and Database

Action Item 7: Develop and create a GIS database that includes a speed limit sign inventory and city-wide sidewalk inventory. Integrate with the existing Venture Out Jax dashboard.

Similar to other *20 is Plenty* initiatives, the City of Jacksonville should develop a speed dashboard and database. This database could feature a variety of components including:

- Displaying up-to-date speed management data: Data from Slow Down Dublin's <u>Speed Management</u> and <u>Enforcement Dashboard</u> includes speed trailers and rotating driver feedback sign locations, number of fatal and serious injury crashes, total month traffic stops, monthly speeding citations issues, and speed survey locations.
- City-Wide Sidewalk and Speed Limit Sign Inventory: Expand the existing Venture Out Jax dashboard to potentially crowdsource existing sidewalk and speed limit sign locations. This database would provide residents of Jacksonville with the ability to add signs and sidewalks that they find throughout their neighborhood.

Crowdsourcing data from the public would benefit the city by creating a comprehensive inventory of street signs and sidewalks within the city at a significantly reduced cost.

How does crowdsourcing data work?

The public would simply add segments of the sidewalk in their neighborhood using an online tool in which they can draw the location of sidewalks or place a point for signage. These additions would be reviewed by city staff to determine if they are valid. A Sign Management solution offered by the Environmental Systems Research Institute (ESRI) provides 150 pre-configured templates for commonly found signs within the Manual of Uniform Traffic



Example speed management dashboard from <u>Slow Down Dublin's website</u>.



Control Devices (MUTCD) and could be used as a basis for the sign inventory³³.





4.8 Action Item 8: Performance Monitoring Program

Action Item 8: Establish a performance monitoring program to evaluate locations where **lower speed limits** and **speeding countermeasures** have been implemented.

Monitoring the performance of the reduced speed limit is the final step of the Action Plan. Collecting, analyzing, and evaluating data allows for actions and strategies to be continually reassessed and refined for optimal results. Performance monitoring allows for limited resources to be allocated where they are needed most and where those resources will have the most significant impact on improving safety.

Analysis of the section of roadway would be performed before and after the implementation of traffic calming measures. A performance monitoring system would include the monitoring of fatalities, serious injuries, average speeds, and citations issued. This monitoring would provide city staff with the ability to determine which traffic calming measures are beneficial and will be further used as evidence of improved safety on residential roadways within Jacksonville. "Countermeasures should be periodically monitored and evaluated in order to refine the mix of strategies as to maximize resources and associated impacts on safety" (Nashville Speed Reduction Study, 2019).

Examples:

It is important to allow enough time for any changes to take effect and for drivers to adapt. Example evaluation time frames range from one to three years after implementation.

- **St. Paul, Minnesota**: Public Works anticipates conducting an initial evaluation of the speed limit changes within approximately three years of implementation. The evaluation will include a review of crashes on city streets before and after the implementation of speed limit changes.
- Seattle, Washington: Conducted before and after studies using the prior five years of annualized data, and 1.8 years of annualized data after implementation. Table 4-2 presents their findings.

	All Crashes	Injury Crashes	50th Percentile Speed	85th Percentile Speed	# of 40+ MPH (high end speeders)
Before	27.4	10.8	28.7 MPH	33.5 MPH	1,023 vehicles
After	17.7	8.6	26.7 MPH	31.2 MPH	373 vehicles
% Change	-35%	-21%	-7%	-7%	-64%

Table 4-2 Example Before and After Data Analysis

*Before data: 5 years annualized (Feb 2013 – Jan 2018)

*After data: 1.8 years annualized (Mar 2018 – Nov 2019)

*Injury Crashes include injury, serious injury, and fatal collisions

Source: Speed Limit Case Studies, Seattle, WA; Greenwood/Phinney Ave N analysis; page 5.





5.0 Final Thoughts

5.0 FINAL THOUGHTS

The City of Jacksonville has some of the Table 5-1 Action Item Implementation highest speed roadways with the presence of pedestrians in the country³⁴, is the third highest area in the country for bicycle fatalities $^{\rm 35}$, and is the sixth highest area in the country for pedestrian fatalities³⁶. These statistics are a result of roadways having a higherthan-average posted speed limit as well as roadways that are designed in a manner that favors motorists as opposed to vulnerable road users.

By applying foundational elements from the FHWA's Safe Systems Approach, a set of action items has been developed for the City of Jacksonville that not only reduces the residential speed limit, but also specifies policy revisions, traffic calming treatments, and enforcement strategies that have been demonstrated to effectively increase the safety of roadways across the country.

The Action Items are displayed in Table 5-**1** along with an estimated time frame for initial implementation (near-term, midterm, or long-term). By implementing this Action Plan, the City of Jacksonville has the opportunity to address their roadway safety statistics in ways that have proven to be effective.

Action Item	Near- Term	Mid- Term	Long- Term
Action Item 1 Speed Limit Policy			
Action Item 2 Sign Strategy			
Action Item 3 Traffic Calming			
Action Item 4 Enforcement Plan			
Action Item 5 Public Outreach Program			
Action Item 6 Speed Advisory Committee			
Action Item 7 Speed Dashboard and Database			
Action Item 8 Performance Monitoring			

From a nationwide perspective, lowering residential speed limits to 20 mph has been a relatively new trend that has been increasing in popularity over the past five years. For reference, 17 example cities that have lowered their residential speed limit to 20 mph have been provided in Section 1.4 of this report. As Jacksonville gets closer to implementing this Action Plan, it may be useful to reach out to some of these example cities to discuss how their specific implementation strategy worked for them, and if there are any lessons learned or advice that city staff can provide. Lowering speed limits has been implemented in a variety of ways across the country, and it is important for the City of Jacksonville to determine which ones will work best for the city.

³⁶ Dangerous by Design, Smart Growth America, 2022.



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³⁴ Safe Speed Index, Streetlight, 2023.

³⁵ Statistic from League of American Bicyclists, news article from Action News Jax