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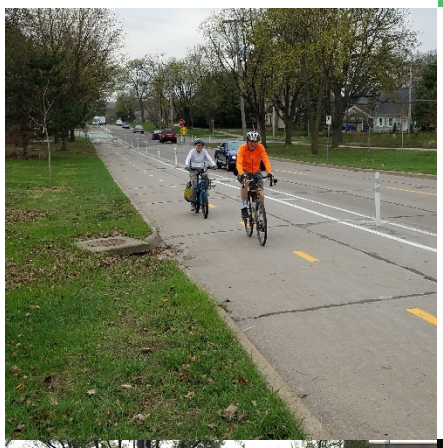
Saint Paul Speed Limit Evaluation

Prepared by the Department of Public Works

March 12, 2020



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Executive Summary

Purpose

City of Saint Paul Department of Public Works has completed a technical evaluation to determine speed limits on city streets following new legislation enabling City governments to set the speed limits on roadways under their jurisdiction. The City completed a technical evaluation process to achieve the following goals:

- To support the City's traffic safety goal of zero traffic deaths and severe injuries
- To Improve safety and comfort for people of all abilities walking, bicycling, and taking transit
- To support the movement of people and goods
- To be consistent, understandable, reasonable, and appropriate for an urban context

Evaluation Process

The Department of Public Works completed a detailed technical evaluation to determine speed limits on City streets. This evaluation included an examination of local policies and plans, national guidance and peer city experiences, relevant safety studies and data, and existing speeds.

Recommendations

Based on the evaluation, it is recommended that the City Engineer exercise authority to set speeds of 25 mph on major streets and 20 mph on minor streets. Under the recommended process for establishing speed limits:

- Principal and Minor Arterial streets are major streets and will generally have 25 mph speed limits and were evaluated to determine whether a higher speed limit is appropriate based on context and design.
- Collector streets are generally major streets with 25 mph speed limits and were evaluated to determine whether a lower speed limit is appropriate based on context and design.
- Local streets are generally minor streets with 20 mph speed limits and were evaluated to determine whether a higher speed limit is appropriate based on context and design.
- Alleys will retain speed limits of 10 mph.

It is recommended that changes to speed limits be deployed Citywide in 2020, including the installation of signs, modifications to traffic signal operations, enforcement efforts, and an education campaign.

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Introduction

This report analyzes local safety, engineering and traffic conditions and national best practices that inform the determination of appropriate speed limits in Saint Paul. The findings of this report will be used to determine speed limit changes on City streets that align with City policies and new legislative authority.

New Legislative Authority

In May 2019, Governor Walz signed into law a bill passed by the Minnesota State Legislature granting cities the authority to set speed limits on streets they control. This went into effect August 1, 2019.

Full language of this provision is:

> *Minnesota Statutes, Section 169.14, Subd. 5h.* ***Speed limits on city streets.*** *A city may establish speed limits for city streets under the city's jurisdiction other than the limits provided in subdivision 2 without conducting an engineering and traffic investigation. This subdivision does not apply to town roads, county highways, or trunk highways in the city. A city that establishes speed limits pursuant to this section must implement speed limit changes in a consistent and understandable manner. The city must erect appropriate signs to display the speed limit. A city that uses the authority under this subdivision must develop procedures to set speed limits based on the city's safety, engineering, and traffic analysis. At a minimum, the safety, engineering, and traffic analysis must consider national urban speed limit guidance and studies, local traffic crashes, and methods to effectively communicate the change to the public.*

The current speed limit on most streets owned by the City of Saint Paul is 30 miles per hour (see Figure 1), which is the statutory urban speed limit set by the Minnesota State Legislature prior to the August 1, 2019 update.

Saint Paul Speed Setting Goals

The City holds streets in trust for the public and manages them for the public good. The City undertook a technical and data-driven review process of speed limits on City streets. The City intended this process to be defensible and replicable in creating guidance for speed limits that achieve the following goals:

- To support the City's traffic safety goal of zero traffic deaths and severe injuries
- To improve safety and comfort for people of all abilities walking, bicycling, and taking transit
- To support the movement of people and goods
- To be consistent, understandable, reasonable, and appropriate for an urban context

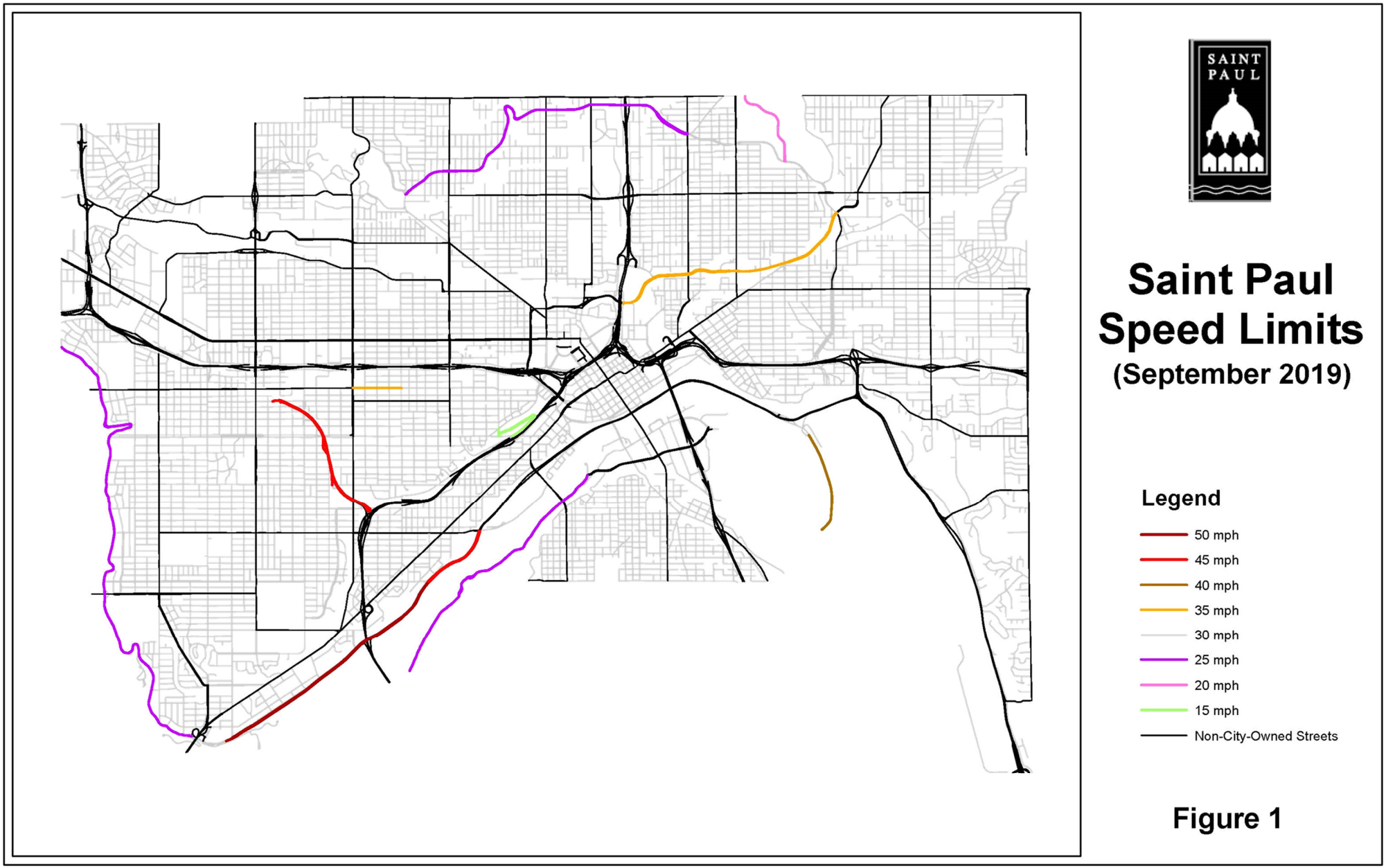


Figure 1: Speed limits on City of Saint Paul streets as of September 2019

Coordination

Saint Paul Public Works has collaborated with internal and external partners throughout the speed limit analysis. Saint Paul has partnered with the City of Minneapolis to ensure consistency in general approach, communications, and implementation timeline. Key decisions around process, analysis, recommendations, and implementation were made jointly between the two cities.

Internal collaborators include the City Attorney's office, Police, Planning and Economic Development, and various Public Works Divisions. Saint Paul Public Works also coordinated with the Minnesota Department of Transportation, Ramsey County, and Metro Transit. City engineers in adjacent cities were informed of the process, timeline, goals, and approach. Staff shared goals, background information, and process steps with the City Engineers Association of Minnesota and League of Minnesota Cities.

Local Policies and Plans

Existing City of Saint Paul transportation policy prioritizes traffic safety for people walking, biking, and taking transit. Two of the City's adopted plans specifically reference lowering speed limits as a means of achieving the City's transportation and traffic safety goals. Details of existing City policy that informs speed limits and a summary of related community input are included below.

Saint Paul 2040 Comprehensive Plan

Saint Paul for All, the Saint Paul 2040 Comprehensive Plan adopted in 2018, has several policies that support reduced speed limits in Saint Paul.

- **Policy T-3.** Design rights-of-way per the following modal hierarchy: 1. Pedestrians, with a focus on safety 2. Bicyclists, with a focus on safety 3. Transit 4. Other vehicles
- **Policy T-5.** Adopt and implement a "Vision Zero" program with the long-term goal of achieving zero traffic fatalities and severe injuries. Components of the program should include street design improvements and behavioral safety improvements, such as reducing driver impairment, inattentiveness and speed through education and enforcement.
- **Policy T-8.** Reduce speed limits where it will improve safety, and work with State and Ramsey County governments to overcome obstacles to implementing this policy.

Saint Paul Pedestrian Plan

The Saint Paul City Council unanimously adopted the Saint Paul Pedestrian Plan in June 2018. Safe mobility for people of all ages and abilities is a core tenet of the plan. The plan vision states "We are a walking city. We are more healthy, resilient and connected when walking is safe and appealing for all." The plan includes several goals and action items to increase pedestrian safety by slowing motor vehicle traffic.

Relevant Plan Goals

- Reduce the number of pedestrian crashes and eliminate traffic-related fatalities and injuries
- Prioritize pedestrian safety in street design

Relevant Plan Actions

- 1-1. Plan, design, build and maintain the City's transportation system in a way that prioritizes walking first, followed by bicycling and transit use and lastly other vehicles.
- 1-2. Advocate for a statewide reduction in urban speed limits as part of the City's legislative agenda.
- 1-6. Reduce pedestrians' exposure to motor vehicles and lower street design speeds. Pursue changes in street designs that lower design speeds and reduce roadway crossing widths.

Saint Paul Climate Action Plan

The Saint Paul Climate Action Plan identifies the following priorities around the transportation sector, with the ultimate goals of reducing the number of vehicle miles traveled throughout the City by 40 percent in 2040:

- Increase safe and reliable access to city destinations without the use of a private automobile
- Commit to reducing transportation costs, particularly in communities of color and low-income communities through a range of initiatives such as providing more public transportation options and investing in safe and affordable active transportation options
- Improve public health through effective transportation and land-use decisions--reduce particulate matter emissions, increase active transportation options and eliminate deaths and injuries from traffic crashes

Saint Paul Street Design Manual

The Saint Paul Street Design Manual, approved in 2016, serves as a tool to implement complete streets policies and guide the design of street projects toward a balanced transportation network for the greatest overall benefit to the public. Two of the document's five guiding principles include street safety:

- Ensure safety for all users, especially more vulnerable groups such as pedestrians, children, senior citizens, cyclists and persons with disabilities
- Accommodate all modes of travel

City of Saint Paul legislative agenda related to speed limits

Each year, the Saint Paul City Council adopts a legislative agenda that sets the City's requests of the Minnesota State Legislature. The City's 2019 adopted legislative agenda supported "improving safety, reducing crashes, and enhancing livability by enabling local municipalities to set lower default speed limits consistent with local priorities and plans."

Community input around traffic speeds and speed limits

Public Works regularly receives complaints about traffic speeds from residents and requests from District Councils or school communities to lower speed limits on specific streets. Many of those complaints relate to local residential streets where most drivers are not exceeding the current 30 mile-per-hour speed limit, which suggests that many residents view the current speed limits as too high.

Analysis

National guidance on setting urban speed limits

In recent years, the transportation industry has sought changes in the approach to setting urban speed limits which are now beginning to yield new and updated guidance. New and updated guidance is moving toward a safe-systems approach to setting speed limits on urban streets rather than one focused on current observed traffic speeds. This section outlines this new and updated guidance.

National Transportation Safety Board

In 2017, the National Transportation Safety Board released a comprehensive report Reducing Speeding-Related Crashes Involving Passenger Vehicles. The report directly addresses the traditional methods for setting speed limits and the challenges with those methods:

> *"Typically, speed limits are set by statute, but adjustments to statutory speed limits are generally based on the observed operating speeds for each road segment—specifically, the 85th percentile speed of free-flowing traffic. Raising speed limits to match the 85th percentile speed can result in unintended consequences. It may lead to higher operating speeds, and thus a higher 85th percentile speed. In general, there is not strong evidence that the 85th percentile speed within a given traffic flow equates to the speed with the lowest crash involvement rate for all road types. Alternative approaches and expert systems for setting speed limits are available, which incorporate factors such as crash history and the presence of vulnerable road users such as pedestrians" (Executive Summary, Page x).*

The report goes on to say:

> *"The relationship between speed and injury severity affects more than just speeding vehicle occupants. This is particularly true in urban areas where the interaction between vehicles and vulnerable road users such as pedestrians is considerably higher. A safe system approach to setting speed limits emphasizes the consideration of human biomechanical tolerances and shifts the focus from vehicles to all road users. Especially in urban areas, it has emerged as an alternative to the use of the 85th percentile speed in setting speed limits in speed zones" (Rethinking How to Set Speed Limits, page 29).*

The report recommends changes to the Federal Highway Administration's *Manual on Uniform Traffic Control Devices* ("MUTCD") "to, at a minimum, incorporate the safe system approach for urban roads to strengthen protection for vulnerable road users" (page 29).

Manual on Uniform Traffic Control Devices (MUTCD)

The MUTCD sets minimum standards and provides guidance to ensure uniformity and consistency on the public transportation system. In the State of Minnesota, the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) is used. The MN MUTCD and MUTCD are, in general, identical in language, and exact in language as they reference speed limits. It is routine that new and addendum language of the MUTCD is adopted by the MN MUTCD.

Based on the National Transportation Safety Board recommendation, the National Committee on Uniform Traffic Control Devices (NCUTCD) began collecting feedback and considering changes to the MUTCD related to setting speed limits.

The current MUTCD offers the following standards (not guidance) for setting speed limits:

> *"Speed zones (other than statutory speed limits) shall only be established on the basis of an engineering study that has been performed in accordance with traffic engineering practices. The engineering study shall include an analysis of the current speed distribution of free-flowing vehicles.*
>
> *[…]*
>
> *The Speed Limit sign […] shall display the limit established by law, ordinance, regulation, or as adopted by the authorized agency based on the engineering study. The speed limits displayed shall be in multiples of 5 mph (Section 2B.13, page 56)."*

The current MUTCD offers the following guidance (not standard) on setting speed limits:

> *"States and local agencies should conduct engineering studies to reevaluate non-statutory speed limits on segments of their roadways that have undergone significant changes since the last review, such as the addition or elimination of parking or driveways, changes in the number of travel lanes, changes in the configuration of bicycle lanes, changes in traffic control signal coordination, or significant changes in traffic volumes".*
>
> *[…]*
>
> *"When a speed limit within a speed zone is posted, it should be within 5 mph of the 85th-percentile speed of free-flowing traffic" (Section 2B.13, page 58).*

The current MUTCD offers the following option (not guidance or standard) on setting speed limits:

> *"Other factors that may be considered when establishing or reevaluating speed limits are the following:*
>
> *A. Road characteristics, shoulder condition, grade, alignment, and sight distance;*
>
> *B. The pace;*
>
> *C. Roadside development and environment;*
>
> *D. Parking practices and pedestrian activity; and*
>
> *E. Reported crash experience for at least a 12-month period (Section 2B.13)."*

The National Committee on Uniform Traffic Control Devices (NCUTCD) recently approved recommended changes to the current MUTCD related to setting speed limits. These recommendations are provided to the Federal Highway Administration (FHWA) for consideration in the next edition of the MUTCD, which requires federal rulemaking. The FHWA has not initiated rule making for the next edition of the MUTCD yet, but this is expected to begin within the next year. The recommendations approved by the NCUTCD include:

- Removing from standard that "The engineering study shall include an analysis of the current speed distribution of free-flowing vehicles."
- Upgrading and revising the considerations for establishing speed zones to read:

  "Factors that should be considered when establishing or reevaluating speed limits within speed zones are the following:

  A. Speed distribution of free-flowing vehicles (such as current 85th percentile, the pace, and review of past speed studies).

  B. Reported crash experience for at least a 12-month period relative to similar roadways.

  C. Road characteristics (such as lane widths, curb/shoulder condition, grade, alignment, median type, and sight distance).

  D. Road context (such as roadside development and environment including number of driveways and land use, functional classification, parking practices, presence of sidewalks/bicycle facilities).

  E. Road users (such as pedestrian activity, bicycle activity)."

- Revising the guidance statement regarding the posted speed limit being made within 5 mph of the 85th percentile speed to apply only "on freeways, expressways, or rural highways."

National Association of City Transportation Officials speed limit guidance

The National Association of City Transportation Officials (NACTO) guide *City Limits: Setting Safe Speeds for Urban Streets* provides urban speed limit guidance is anticipated to be released in March 2020. The information included below is based on a draft version of their guide.

NACTO's guide identifies two general approaches (citywide or category of street) for setting speed limits and states the following:

> *"Cities have two options for setting default speed limits: citywide or by street category of street (e.g., major, minor, alley).*
>
> *Citywide speed limits are generally easier to implement and may be easier for drivers to follow. However, in cities where there is clear differentiation between major arterial streets and local or minor streets, setting speed limits based on category of street can sometimes allow cities to lower speed limits on a large number of streets below what would be allowable citywide (i.e., 20 mph on minor streets vs. 25 mph citywide).*
>
> *If cities have the authority to set default speed limits, they should decide whether to implement citywide limits or category limits based on what makes the most sense given the local conditions"*

If setting a default citywide speed limit, NACTO recommends using 25 mph. "Setting or lowering default citywide speed limits is an inexpensive, scalable way to quickly improve safety outcomes, and establish a basis for larger safety gains. Default citywide limits also provide consistent expectations and messages about speed across the jurisdiction, which is easy for drivers to follow".

If using category speed limit approach, NACTO recommends:

- Major streets: 25 mph.
  "A 25 mph speed limit on urban multi-lane streets has demonstrable safety benefits for all users. Major streets feature a combination of high motor vehicle traffic volume, signalization of major intersections, and an inherently multimodal street environment".
- Minor streets: 20 mph.
  "A 20 mph speed limit on minor streets supports safe movement and contextually appropriate design on the majority of city streets. Since minor streets tend to have either very low volumes or operate at the speed of the most cautious driver, cities can apply a category speed limit to minor streets without detailed review of street characteristics. Minor streets include physically small streets where low speeds are often already present, as well as low-vehicle-volume streets with few or no transit stops".
- Alleys and shared streets: 10 mph

NACTO identifies that cities can define "slow zones."

> *"Slow Zones are specifically designated areas with slower speeds than otherwise similar streets in the same jurisdiction. Neighborhood-scale or site-specific zones are useful for addressing high-priority areas such as areas with elevated collision rates or sensitive land uses (schools, parks, etc.). Cities should create slow zones based on their own location-specific needs, but several types of slow zones are relatively common".*

The guide provides examples of slow zones in school, park, and senior areas, neighborhoods and districts, and in downtown areas.

The NACTO guide includes additional details for analyzing speeds on major streets if a jurisdiction is not able to set default citywide or category speed limits. The guide recommends setting safe speed limits by evaluating conflict density and activity level. Their recommendations say that streets with high activity and high conflict density should have 20 mph speed limits while urban streets with low activity levels and low conflict density should have maximum speed limits of 35 mph.

USLIMITS2

In 2008, the FHWA developed a knowledge-based expert system called USLIMITS for recommending speed limits in speed zones that take pedestrians and bicyclists into consideration. The current version, USLIMITS2, was created in 2012 as a "user-friendly, logical, and objective tool for local communities and agencies with limited access to engineers experienced in conducting speed studies for setting appropriate speed limits. For experienced engineers, USLIMITS2 can provide an objective second opinion and increase confidence in speed limit setting decisions." Since its development, use of USLIMITS2 by practitioners has been limited.

National Cooperative Research Program Report on Speed Limit Guidance

There is an active research study on speed limits that is not yet available, so its recommendations could not be considered as part of this analysis. Public Works will consider this study as part of future evaluation of speed limits. The research objectives of National Cooperative Research Program (NCHRP) project 17-76 are to:

- Identify and describe factors that influence operating speed; and
- Provide guidance to make informed decisions related to establishing speed limits on roadways.

Speed Limits in Other States

In 2017, a majority of states (30) had a default urban speed limit of 25 mph, including all of Minnesota's neighboring states (see Figure 2). In addition, 17 states allow a 20 mph speed limit if certain conditions are met. Since 2017 some states have made changes to their speed limits under various conditions.

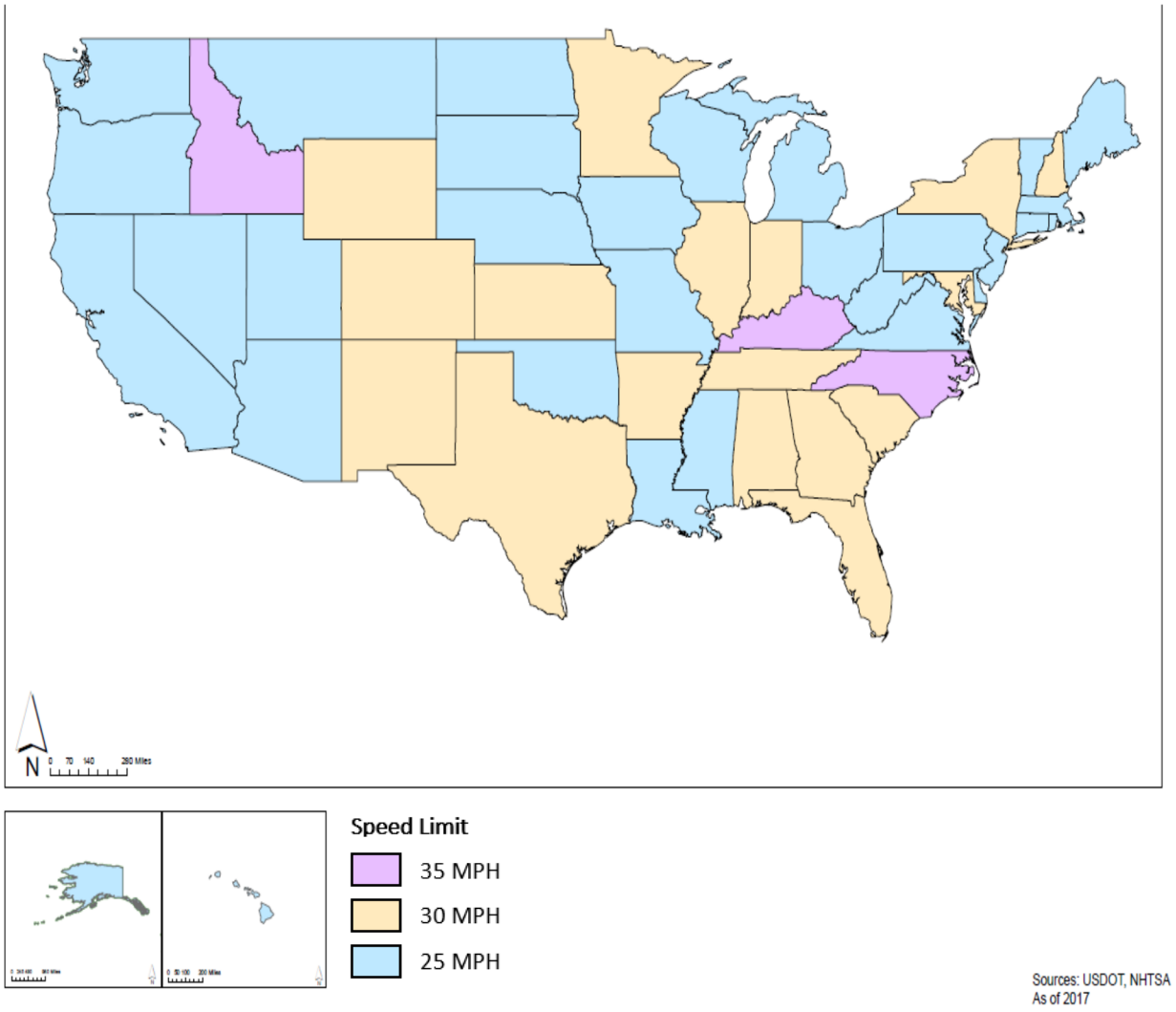


Figure 2: Default Urban Speed Limit by State

National safety research

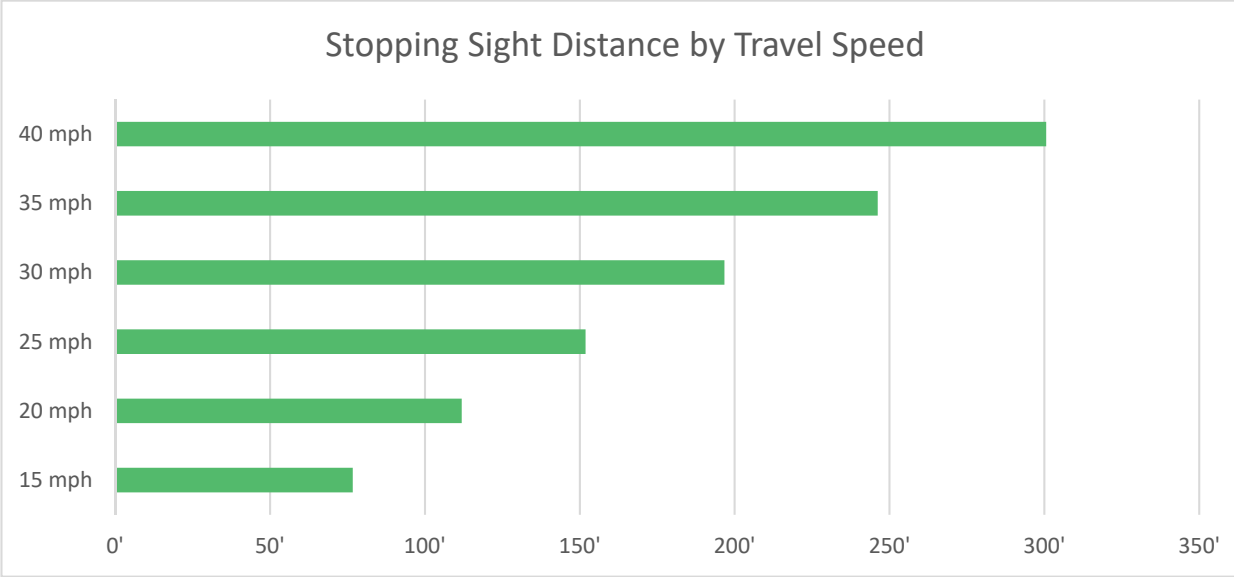
A number of studies demonstrate the relationship between speed and street safety. Generally, higher speeds increase the likelihood of a crash and the likelihood that a crash will be severe or fatal.

The National Transportation Safety Board 2017 report *Reducing Speeding-Related Crashes Involving Passenger Vehicles* summarizes the connection between speed and safety:

> *"Speed—and therefore speeding—increases crash risk in two ways: (1) it increases the likelihood of being involved in a crash, and (2) it increases the severity of injuries sustained by all road users in a crash.*

The relationship between speed and crash involvement is complex, and it is affected by factors such as road type, driver age, alcohol impairment, and roadway characteristics like curvature, grade, width, and adjacent land use. In contrast, the relationship between speed and injury severity is consistent and direct. Higher vehicle speeds lead to larger changes in velocity in a crash, and these velocity changes are closely linked to injury severity. This relationship is especially critical for pedestrians involved in a motor vehicle crash, due to their lack of protection" (Executive Summary page ix).

A key factor in the likelihood of a crash is how far it takes a vehicle to stop. Figure 3 outlines the relationship between stopping sight distance and speed. Stopping sight distance grows with speed. According to the American Association of State Highway and Transportation Officials (AASHTO), it takes the average driver 301 feet to stop at 40 mph, 197 feet at 30 mph, and 112 feet at 20 mph. A change from 30 to 20 mph results in an average driver stopping 85 feet sooner, which is a significant distance. To provide context, 85 feet is almost 5 car lengths of 18 feet each. Note that other research yields different stopping sight distances based on different reaction times and speeds of braking (AASHTO guidance is conservative), but it always takes longer to stop at higher speeds.



Data Source: American Association of State Highway and Transportation Officials (AASHTO). A Policy on Geometric Design of Highways and Streets. Washington, DC: AASHTO, 2011. "Assumes 2.5 second perception-braking time and 11.2 ft/sec2 driver deceleration."

Figure 3: Stopping Sight Distance by Travel Speed

Figure 4 shows the relative crash risk for a pedestrian hit at different speeds. A person is significantly more likely to lose their life or sustain a serious injury as the speed at impact increases. A person hit at 30 mph is three times as likely to be killed than at 20 mph.

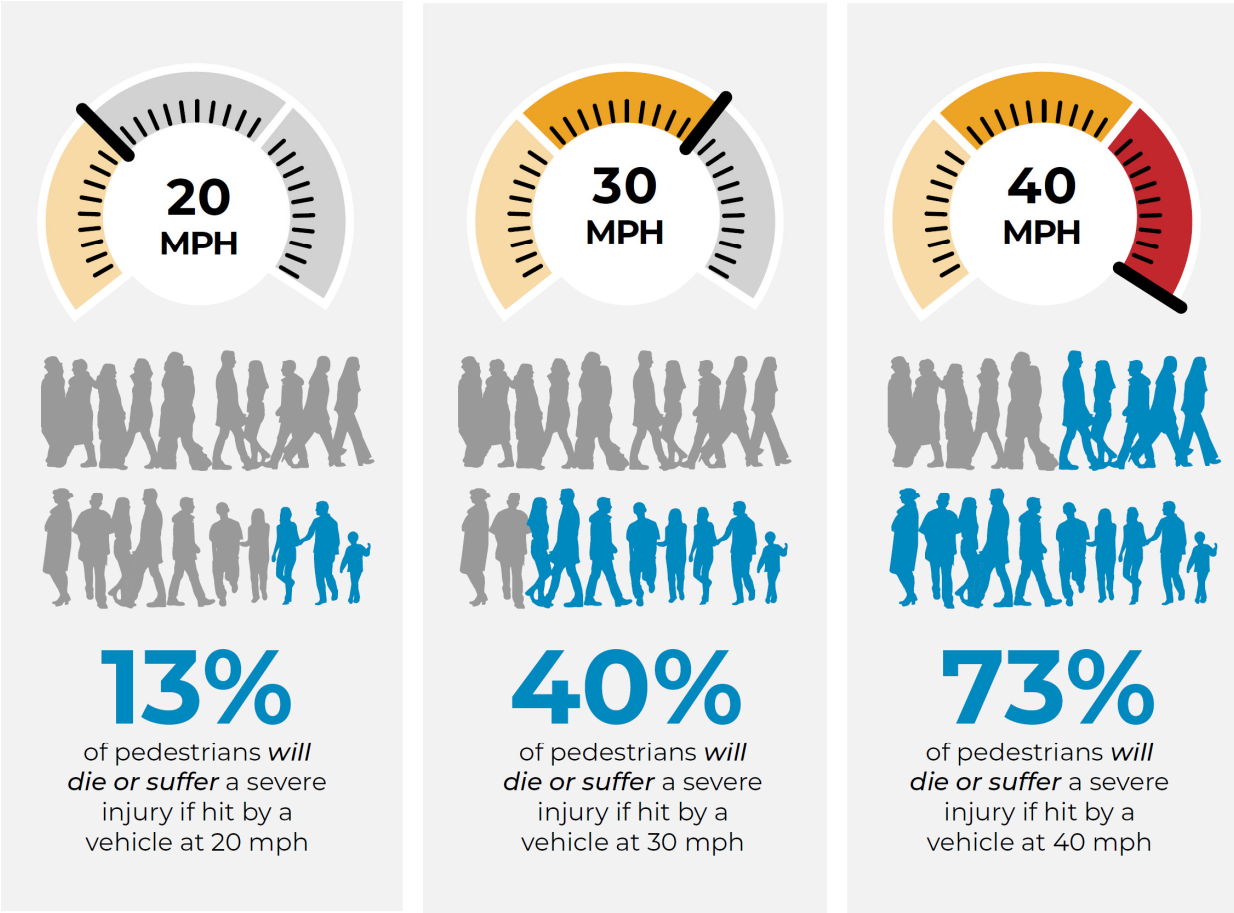


Figure 4: Pedestrian Risk and Impact Speed

While the fact that lower traffic speeds increase safety is well established, there has been less study on the impact of speed limits on traffic speeds. A 2018 Insurance Institute for Highway Safety study *Lowering the Speed Limit from 30 to 25 mph in Boston: Effects on Vehicle Speeds* is the most recent detailed look at the impact of a change in speed limits on observed vehicle speeds. The study concluded that "lowering the speed limit in urban areas is an effective countermeasure to reduce speeds and improve safety for all road users".

The study found significant reductions in the probability of vehicles exceeding 30 mph and 35 mph. There was a 29.3 percent decline in the odds of speeding for vehicles traveling faster than 35 mph. Reduction in higher urban speeds is especially valuable because risk to pedestrians increases dramatically between 25 mph and 35 mph.

The study showed only a small change in the average traffic speed in Boston after the speed limit change, reinforcing that people generally drive to what they feel is comfortable given the context and design of the street. These results also suggest that there was less speed differential with the 25-mph limit than with the 30-mph limit since higher-end speeds decreased. Minimizing speed differential has been one of the long-standing rationales for using the 85th percentile for setting speed limits, but this study reinforces that behavior on urban streets is different than rural and highway conditions.

Lessons from cities that have recently changed speed limits

A growing number of cities have lowered speed limits in recent years, including Charlotte, Seattle, Albuquerque, Cambridge, Boston, Portland, and New York City. In Minnesota, Nevis was the first city to lower speed limits after the new speed limit legislation: they lowered speed limits on residential streets to 20 mph.

To inform the City's speed limit recommendations, staff spoke with New York City, Portland, and Seattle about their experience implementing speed limit changes. All three cities have recently been given new legislative authority regarding speed limits. While the legislative authority under which each city controls its speed limits differs, these cities provide lessons learned for successful implementation of speed limits changes in urban areas. New York City provides an example of a city that recently changed their citywide default speed limit to 25 mph while Portland and Seattle provide slightly different examples of using a tiered category approach to setting speed limits. Overall, each city lowered speed limits to support safety and has found success with their speed limit change.

New York City

Before 2014, New York City used a citywide default speed limit of 30 miles per hour for all streets. The City signed 20 mph neighborhood "slow zones" in about 30 areas of the city—typically quieter residential neighborhoods. These slow zones were complemented by signing and traffic calming features. In addition to slow zones, some arterial streets also had speed limits different from the 30 mph default; most were signed for speed limits above 30 mph. In 2014, New York City received permission from the state legislature to lower its citywide default speed limit to 25 mph and implemented changes accordingly.

The change to a 25 mph default speed limit prompted staff to review arterial streets in the city and employ a safe systems approach to setting new speed limits on those corridors. Today, only a few non-limited access highways have a speed limit higher than 25 mph. Those are all signed. New York City has not added slow zones after they changed the default speed limit. According to city staff, interest in the program has gone down since statutory speed limits were lowered, while staff have refocused administrative time on arterials and high-crash streets.

Portland

In 2018, Oregon state law was amended to allow cities to establish a 20 mph speed limit on all non-arterial streets in residential districts under city jurisdiction. The state statutory speed limit is 20 mph for business districts (mostly downtown) and has been so for many years. In 2018, Portland lowered the speed limit on residential district streets to 20 mph after receiving new legislative authority to do so.

Portland has been working to lower speed limits on non-residential streets for several years and must obtain approval from the Oregon Department of Transportation to do so. In 2016, the City received approval for an alternative process to make lowering those speed limits easier and is pursuing speed limit changes to arterial streets on an individual basis.

Seattle

In 2016, Seattle adopted new default speed limits of 20 mph for residential streets and 25 mph for arterial streets unless otherwise signed. Those changes came a few years after the Washington State Legislature gave cities the authority to lower speed limits on residential streets.

Seattle has also been lowering speed limits on many of its arterial streets. The City has been piloting use of the 50th percentile (rather than 85th percentile) for setting speed limits on busier streets in areas defined as urban villages. In December 2019, Seattle announced that it was lowering the speed limit on most arterial streets to 25 mph.

Saint Paul Bicycle and Pedestrian Crash Analysis

In 2019, Saint Paul staff initiated a review of bicycle and pedestrian crashes on streets in the city between 2009 and 2018. The purpose of the review was to understand where, how and why pedestrian and bicyclist crashes occur. Although the review is ongoing, initial findings demonstrate a relationship between bicycle and pedestrian crashes and motor vehicle speeds.

Between 2009 and 2018 on streets in Saint Paul:

- 816 crashes involved bicyclists and 1,364 crashes involved pedestrians.
- 199 crashes resulted in people killed or seriously injured while walking or bicycling. That equals 33 percent of the 592 total crashes that resulted in death or serious injury during the same time period in Saint Paul.
- Non-motorized users were involved in about 3 percent of total crashes, but 33 percent of crashes that were serious or fatal.
- A pedestrian is struck in Saint Paul approximately every 2.5 days. A bicyclist is struck approximately every 5 days. The number of crashes involving pedestrians was on the rise over the period studied.

In reviewing the locations of bicyclist and pedestrian crashes, two findings emerged with implications for speed limits:

- Among injury crashes, the likelihood of serious injury increases on streets with higher speed limits. (See Figure 5).
- While crashes happen on all types of streets, crashes are concentrated on higher-traffic collector and arterial streets, which often have higher design and operating speeds (See Figure 6).

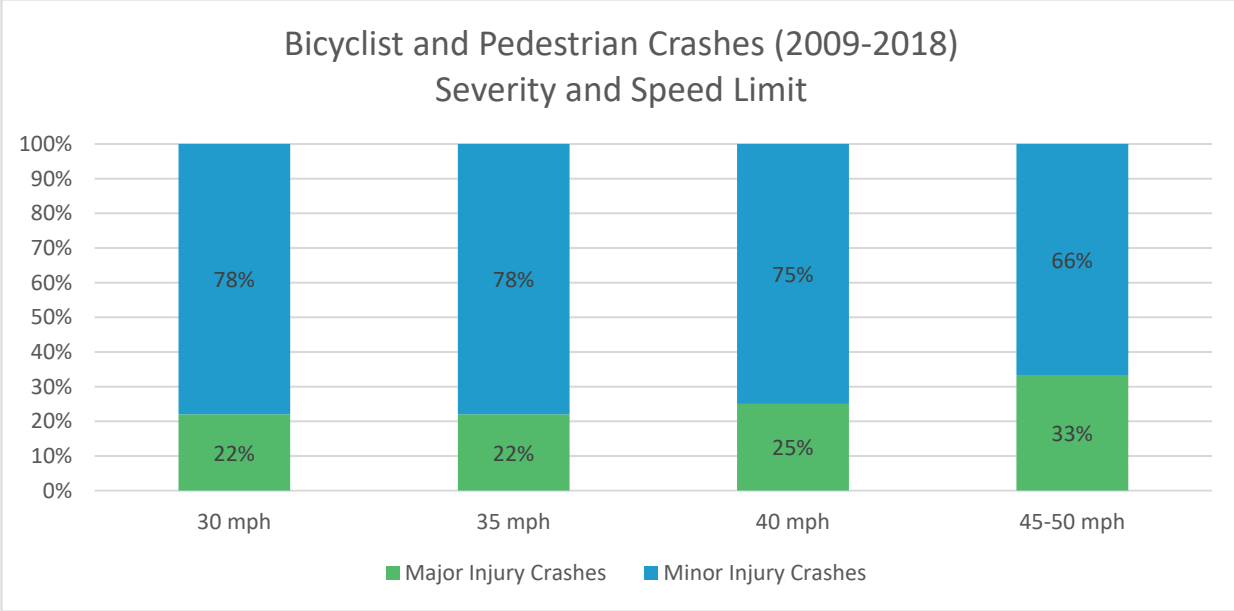


Figure 5: Bicyclist and Pedestrian Crashes

Saint Paul Roadway Safety Plan

The Saint Paul Roadway Safety Plan, published in January 2016, reviewed fatal and serious injury crashes on Saint Paul streets from 2009 to 2013. Findings of the report include:

- In Saint Paul, 39 percent of severe crashes are on city-owned streets, which is more than the county (36 percent) or state (25 percent) systems.
- From a traffic volume perspective, severe crashes are over represented on streets with volumes greater than 10,000 vehicles per day (21 percent of severe crashes versus 2 percent of the system by mileage) and under represented on streets with volumes less than 5,000 vehicles per day (41 percent of crashes versus 52 percent of the system by mileage).
- From a functional classification perspective, severe crashes are overrepresented on arterials and collectors (91 percent of severe crashes versus 21 percent of the system by mileage) and underrepresented on local streets (9 percent of severe crashes versus 79 percent of the system by mileage).

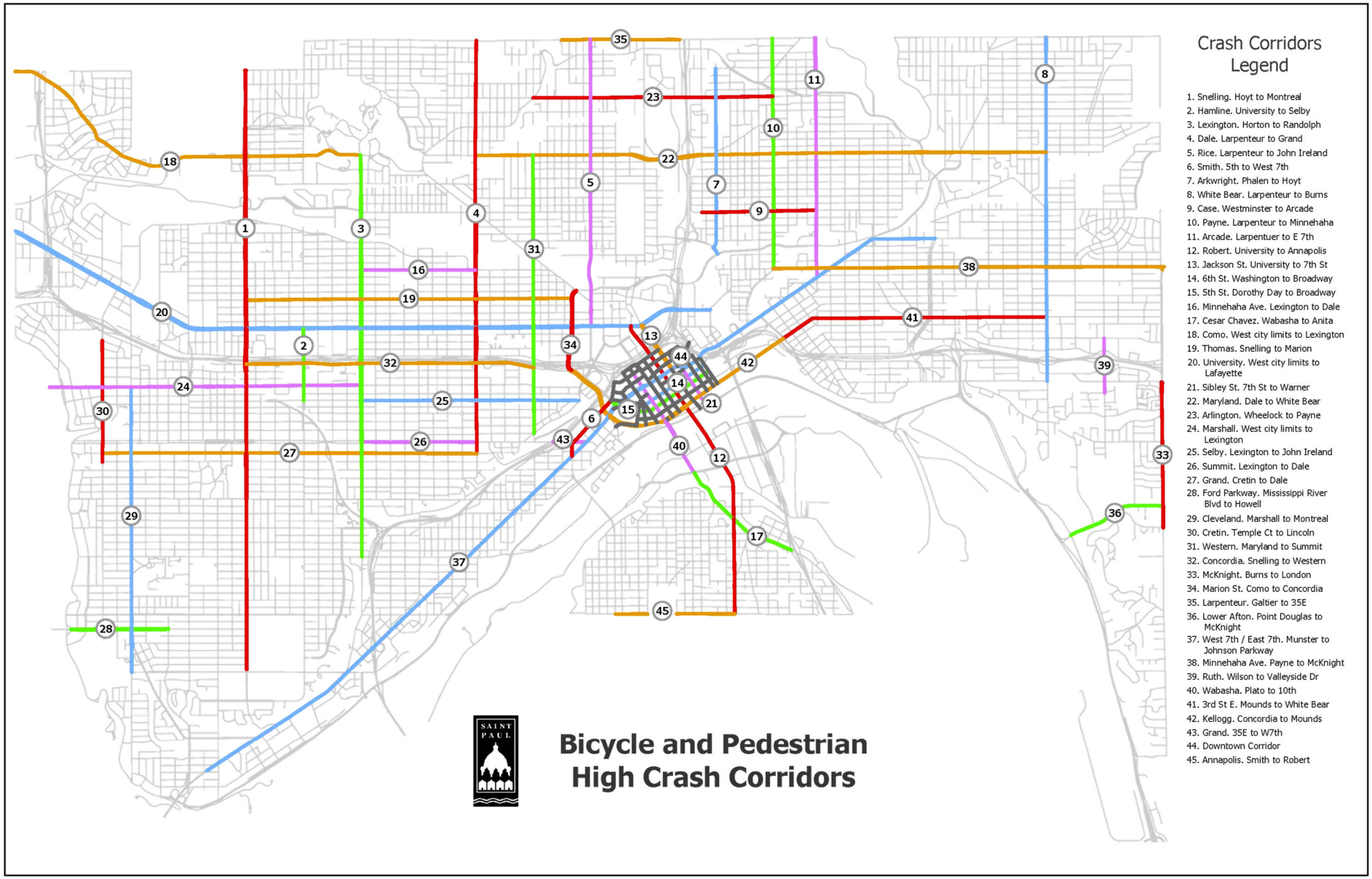


Figure 6: Bicyclist and Pedestrian High Crash Corridors

- From a driver behavior perspective, the top five emphasis areas include; Unbelted (22 percent), Impaired (20 percent), Unlicensed (17 percent), Inattentive (16 percent), and Speed (12 percent).
- The most common type of severe and fatal crashes in Saint Paul are those involving pedestrians and bicyclists.

In reviewing the *Saint Paul Roadway Safety Plan*, two findings emerged with implications for speed limits:

- Severe crashes are overrepresented on higher traffic collector and arterial streets, which often have higher design and operating speeds.
- Speed was identified as one of the top five driver behavior emphasis areas. Speed was also identified as a factor in a significant percentage (26 percent) of serious and fatal crashes in Ramsey County from 2014-2018, according to Minnesota Department of Public Safety crash data.

Saint Paul Traffic Speed Study

To develop an understanding of how motorists today behave on different types of streets under the existing speed limit regulations, the City performed an evaluation of existing speeds on roadways within Saint Paul.

Speed data from 478 locations was used in this evaluation. The collected data came from two sources:

- The City frequently conducts speed studies to evaluate existing conditions to determine the appropriate action to take in response to a citizen concern or to aid in the design process. This review utilizes data collected within the previous five years. This data set includes speeds from 407 locations on City, County, and State-owned streets.
- Additional speed studies were performed to augment existing data. The locations for these speed studies were chosen to ensure that all geographical areas of Saint Paul were represented. This data set includes speeds from 71 locations. This data was collected on City-owned roadways between September and November of 2019.

Data from both sources was typically collected for 48 hours in the middle of a typical weekday. Speed data was collected by direction, and all data reported counts each direction as an individual study.

Table 1 and Table 2 provide a summary of the collected data on roadways with a speed limit of 30 mph within the City. Data collected on roadways with speed limits other than 30 mph were removed from the data set to provide simpler results.

Table 1: Speed characteristics of observed vehicles

	Studies	Vehicles Counted	Mean speed	Percentage exceeding current 30 mph speed limit
County Roadways	88	1,176,469	31 MPH	57%
State Roadways	8	113,493	30 MPH	57%
City-Owned Streets				
Arterial	24	184,533	28 MPH	38%
Collector	224	1,065,593	29 MPH	43%
Local	543	456,817	23 MPH	15%

Due to the limitations of the historical data, the percentile speeds for each roadway type were not available. The data presented in Table 2 represents the median observed study for each percentile speed.

Table 2: Speed characteristics of study locations

	Studies	Median Percentile Speed			
		15th	50th	85th	95th
County Roadways	88	26 MPH	31 MPH	35 MPH	38 MPH
State Roadways	8	25 MPH	31 MPH	35 MPH	39 MPH
City-Owned Streets					
Arterial	24	23 MPH	28 MPH	33 MPH	36 MPH
Collector	224	23 MPH	28 MPH	33 MPH	36 MPH
Local	543	15 MPH	21 MPH	27 MPH	29 MPH

A few notable observations can be made from this summary:

- Most drivers on all City-owned streets currently drive below the posted 30 mph speed limit.
- As expected, speeds tend to be higher, with a higher proportion of vehicles exceeding the speed limit, on collector and arterial streets.
- Little difference was observed between observed speeds on County and State-owned roadways.

Findings and Conclusions

Based on the data and research documented in this study, the key findings from the evaluation are:

- Lower traffic speeds reduce both the likelihood of crashes and that those crashes will be severe or fatal.
- A majority of states have lower speed limits than Minnesota. All of Minnesota's neighboring states have a 25 mph default urban speed limit.
- The traditional approach of using 85th percentile speed to set speed limits is no longer considered the best practice for urban streets.
- When setting urban speed limits with broad authority, there are two common options emerging from guidance and recent city speed limit changes:
    - Default citywide speed limit of 25 mph; or
    - Category speed limits by minor and major streets with 20 mph on minor streets and generally 25 mph speed limits on major streets.
- Portland and Seattle, which are similar to Saint Paul in context and street design, have found success with the category speed limit approach.

The key findings, above, led to the following study conclusions:

- Speed limits lower than 30 mph are justified because they:
    - Promote public health, safety and welfare,
    - Support City policies,
    - Align with emerging national best practices for safe urban street operations, and
    - Support the City's traffic safety goal of zero traffic deaths and severe injuries.
- For Saint Paul, a category approach to speed limits is most appropriate with 20 mph on local residential streets and generally 25 mph on collector and arterial streets.
    - These lower speed limits prioritize public health and safety (a person hit at 30 mph is three times as likely to be killed or severely injured than a person hit at 20 mph).
    - These lower speed limits are reasonable given the clear differences in the design, context, safety, expectations, and operations of minor and major City streets.
    - A citywide 25 mph speed limit does not best reflect the design, land use, mode use, and expectations of minor City streets, which are about 74 percent of City-owned streets.
    - Minor City streets generally serve short, local connections, have low traffic volumes, have on-street parking, are narrow and require slow speeds when two cars pass each other, do not have dedicated space for biking, and have frequent entrances to residents or businesses.
    - Major City streets generally serve longer trips than minor streets, have higher traffic volumes, have traffic signals at higher volume intersections to support safe crossing of all modes, and are wider in width.

Saint Paul Speed Limit Recommendations

Category Speed Limits

Based on the above findings and conclusions, Public Works staff recommend that the City Engineer use a category approach to set speed limits. The recommended category speed limits are:

- Minor streets will be 20 mph unless otherwise signed. These are generally local residential streets.
- Major streets will generally have speed limits of 25 mph and will be signed. Major streets are generally arterial and collector streets.
- Some major streets will have speed limits higher than 25 mph based on specific conditions and will be signed.
- Alleys will retain speed limits of 10 mph.

Staff recommend the above category speed limits because they:

- Send a strong message to the driving public that "slower is safer" on all streets
- Were found to be enforceable and defensible by an internal technical advisory committee
- Align with the forthcoming NACTO speed limit guidance
- Are consistent with clear differences in the design, context, safety, expectations, and operations of major and minor city streets:
- Align with Minneapolis' recommended speed setting approach, providing consistency in messaging to the traveling public
- Support the City's traffic safety goal of zero traffic deaths and severe injuries
- Improve safety and comfort for people of all abilities walking, bicycling, and taking transit
- Support the movement of people and goods
- Are consistent, understandable, reasonable, and appropriate for an urban context

Application of Category Speed Limits

The map of recommended speed limits on City streets is shown in Figure 7. Every street was identified as being either a major or minor urban street based on the forthcoming speed limit guidance from National Association of City Transportation Officials (NACTO). The primary basis for street categorization was based on the street Functional Classification System as shown in the Saint Paul 2040 Comprehensive Plan, which is based on the context, function, and design of the street.

- Principal and Minor Arterial streets are major streets and will generally have 25 mph speed limits and were evaluated to determine whether a higher speed limit is appropriate based on context and design.
- Collector streets are generally major streets with 25 mph speed limits and were evaluated to determine whether a lower speed limit is appropriate based on context and design.

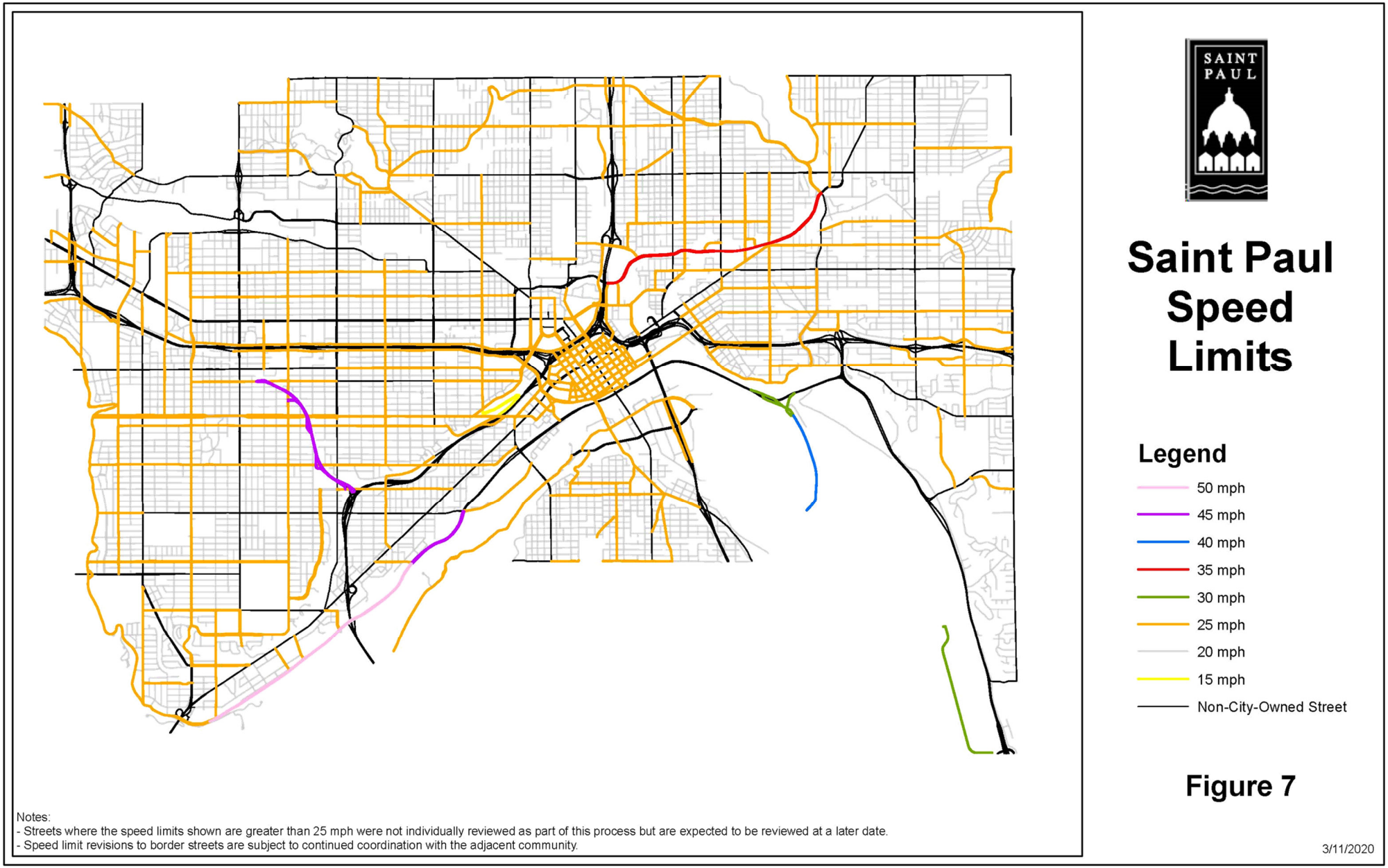


Figure 7: Map of Recommended Speed Limits

- Local streets are generally minor streets with 20 mph speed limits and were evaluated to determine whether a higher speed limit is appropriate based on context and design.

Arterial streets were evaluated to determine where speed limits higher than 25 mph are appropriate based on local context and design. City staff used the forthcoming NACTO *Checklist for Analyzing Existing Conditions and Using the Safe Speed Study Table* in their speed limit guidance to identify street segments with low conflict density and activity levels. Five roadway segments (Ayd Mill Road, Shepard Road, Phalen Boulevard, Childs Road, and Red Rock Road) were identified where speed limits higher than 25 mph are expected to remain in place. Speed limits on these roadways were not individually reviewed as part of this process but are expected to be reviewed at a later date.

Collector streets were evaluated to determine if a 20 mph speed limit is more appropriate based on current design and use, and local streets were evaluated to determine whether a 25 mph speed limit is more appropriate based on current design and use. The following criteria were taken into consideration while determining appropriate speed limits:

- **Downtown** – All streets in the downtown core are proposed to be 25 mph.
- **Traffic Volume** – Streets above 2,000 ADT are more likely to be 25 mph, while streets below 2,000 are more likely to be 20 mph.
- **Roadway Character** – Streets with longitudinal lines designating parking lanes or travel lanes are more likely to be 25 mph. Roadways without defined travel or parking lanes are more likely to be 20 mph.
- **Transit** – Streets with regular route bus service are more likely to be 25 mph.
- **Bikeways** – Streets identified in the Saint Paul Bicycle Plan as an existing or planned Bicycle Boulevard are proposed to be 20 mph.
- **Connectivity** – Streets that make logical connections between neighborhoods or across barriers are more likely to be 25 mph. Local streets that are less than 0.5 miles in length and create a logical extension of an otherwise 25 mph street are more likely to be 25 mph. In most cases, streets with 25 mph speed limits terminate with other 25 mph streets.

Using the criteria described above, Staff evaluated approximately 793 miles of streets under City jurisdiction. Approximately 74 percent of the streets are proposed to be 20 mph, 24 percent of the streets are proposed to be 25 mph, and two percent of the streets are proposed to have speed limits of 30 mph or higher.

Implementation

This section provides a summary of the primary steps the City will take to implement the identified speed limit changes. The primary steps include the following:

- Communications and Outreach
- Speed Limit Signing
- Traffic Signals
- Enforcement
- Evaluation

Communications and Outreach

The City will implement a proactive communications and outreach plan to educate people about the new speed limits. The City will use the speed limit changes as an opportunity to highlight the important connection between traffic speed and safety.

The City will coordinate with the City of Minneapolis on communications and education around new speed limits and work to have shared messages, materials, press events, and other efforts. The City of Saint Paul and the City of Minneapolis will jointly announce forthcoming changes in speed limits on March 12, 2020.

Goal

Build awareness of the new lower speed limits on city-owned streets in Saint Paul and Minneapolis by educating:

- Residents and visitors about new speed limits on Minneapolis and Saint Paul City-owned streets using a joint communications plan with consistent messages, timing and branded campaign materials for both Cities.
- Residents on the important connection between lower traffic speeds and improved safety for everyone – “Slower is Safer.”

Core Message

“Slower is Safer. Slower speeds on our local streets make travel safer for everyone no matter how they get around.”

Communication Objectives

- Coordinate consistent key messaging between the City of Saint Paul and the City of Minneapolis to keep people informed of the similar, but separate processes for changing the speed limits on local, City-owned streets (e.g. new ordinances, technical study, speed limit changes).
- Using both earned and paid media, create a collaborative, integrated educational marketing campaign to promote awareness of new local speed limits to Saint Paul and Minneapolis residents.

- Develop partnerships, outreach and messaging to be inclusive of people from many backgrounds, including non-English speakers.
- Develop and distribute an online community "tool kit" with campaign-branded materials to be used by neighborhood/district councils and community members to promote and build awareness of new speed limits.
- Create a joint "kick-off" media event on March 12, 2020, with community partners and City leadership to celebrate the first lower speed limit signs being posted on Franklin Avenue, a shared city-owned street that connects Saint Paul and Minneapolis.
- Create a paid media campaign to reach our broader target audiences using social media, Metro Transit, and local radio.

Speed Limit Signing

The core features of the Saint Paul sign plan include:

- Signs at gateway locations showing the Citywide default speed limit in Saint Paul is 20 mph unless otherwise posted. These signs may also be placed periodically in non-gateway locations as appropriate.
- Speed limit signs on streets where the speed limit is over 20 mph. Locations of signs for speed limits above 20 mph will be guided by:
    - At speed limit transition points
    - Near intersections with arterial or other high-traffic streets
    - At least once every mile
- Signs for streets with 20 mph speed limits will only be posted at speed limit transition points along a corridor or where staff determine the speed limit needs to be reinforced because of high potential conflicts or crash history.
- Installation of new speed limit signs is anticipated to take months to complete. New speed limits will take effect as each roadway is signed.

Traffic Signals

Several aspects of traffic signal timing are determined by the speed limits on the streets approaching a traffic signal. These include:

- Clearance intervals for yellow and all red phases
- Loop detector locations and settings
- Coordination parameters

Adjustments to clearance intervals will be necessary at any signalized intersection where changes to the speed limit of one or more approaching streets are implemented. Adjustments to coordination parameters and detector settings may be required at any signalized intersection where changes to the speed limit are implemented, depending on location. The City of Saint Paul operates and maintains most traffic signals within

City borders; the remainder are operated and maintained by the Minnesota Department of Transportation and Ramsey County.

Enforcement

The Saint Paul Police Department (SPPD) is working closely with Saint Paul Public Works and supports the concept of reducing speed limits on City-owned streets. Providing and ensuring safe movement for all modes of transportation throughout the City is always a priority for Saint Paul police officers. Speeding is something that all officers are aware of, concerned about, and monitor whenever they are on duty.

Speeding violations are the number one moving violation enforced by SPPD. SPPD regularly enforces speeding violations throughout the City, and they will continue to do so. SPPD has always been a strong partner in community initiatives around street safety, such as Stop For Me and Safe Routes to School. They will continue to work with the City and our community partners to raise awareness about the speed limits in Saint Paul, as well use existing resources to conduct enforcement efforts throughout the City.

Evaluation

Public Works anticipates completing an initial evaluation of the speed limit changes within approximately three years of implementation. The evaluation is anticipated to include:

- A review of traffic speed studies after the implementation of speed limit changes.
- A review of crashes on City streets before and after the implementation of speed limit changes.
- If appropriate, any recommended speed limit modifications.