AUSTIN TRANSPORTATION DEPARTMENT

M E M O R A N D U M

TO:	Mayor and Council Members
CC:	Spencer Cronk, City Manager Gina Fiandaca, Assistant City Manager
FROM:	Robert Spillar, P.E., Director, Austin Transportation Department
DATE:	June 24, 2019
SUBJECT:	**Speed Management Program - Draft Framework**

After Council's adoption of the Austin Strategic Mobility Plan (ASMP) in April, ATD is moving into implementation of actions from the plan, including Action Item 9 which identifies the importance of developing a comprehensive, data-driven approach to speed management. This memo also serves as an update to the June 2018 and October 2018 memos related to the revamping of the Local Area Traffic Management Program (LATM) and the creation of a new comprehensive speed management approach. No action is needed from Council at this time. Over the next few months, ATD staff intend to continue engaging with interested stakeholders and will follow up with Council in late summer 2019 regarding final program details and resources required to implement the proposed Speed Management Program.

Objective and Framework

The objective of the new Speed Management Program is to improve safety and enhance the livability of Austin streets through context-appropriate speed reduction strategies. This means reducing the likelihood of serious injury and fatal crashes as well as reducing egregious speeding on all street levels.

The proposed program has two components which use the street categories identified within the ASMP:

- Street Levels 1 & 2 (commonly referred to as "neighborhood and collector streets"), and
- Street Levels 3 & 4 ("corridors and arterial roadways")

This numerical categorization of streets aligns with both the ASMP and the upcoming revisions to the Transportation Criteria Manual. Separating an approach to speed management into these two components allows for the appropriate utilization of different tools for the differing contexts throughout our roadway network, with an understanding that each street will be analyzed along a continuum based on many contextual factors.

All previously funded and constructed LATM requests from 2012-2017 were on Level 1 & 2 streets. Applications for street segments received through the LATM program which were not selected for projects will be incorporated into the new prioritization methodology and evaluated in the context of the city as a whole. However, during the transition to this new approach, when these street segments are identified in the highest priority levels they will be given priority when funding is available. The status of the last pending projects from the LATM can be found on page 3.

Distinction of Policy and Operational Program

It is important to note that some aspects related to setting speed limits will be handled outside of the proposed Speed Management Program. Determinations of desired target speeds will occur within the ongoing effort to revise the Transportation Criteria Manual, building off of the work performed in summer 2017 to develop the Austin Street Design Guide. ATD is proposing this Speed Management Program Framework as the operational implementation of policy as adopted by Council. ATD will explore available options under current state law, as well as seek opportunities in future legislative sessions for state-level policy changes that align with the overall objective of this proposed program. This may include regulations on prima facie speed limits as well as additional tools proven to be effective in other states like automated speed enforcement. Any proposed changes to speed limits will continue to require Council approval, as stated in current City Code.

Funding

ATD will use Fiscal Year 2019 funding to advance the details of the new proposed program framework. This includes the purchase of new Dynamic Speed Display Devices (DSDDs) for use in the program, as well as contractual services to perform analysis on existing data and develop a model which will be applied citywide to identify the areas of highest need. ATD will continue to explore the purchase of speed data that would provide access to citywide information for program needs. More information is being gathered now that will determine the best approach for data needs moving forward.

While the program will seek coordination with other City programs to the extent possible, the department's Fiscal Year 2020 Budget will propose inclusion of resources needed to achieve the outcomes desired in this proposed program:

- Speed Management Program Manager
- Operating budget to implement engineering solutions (the number of projects that can be implemented will be dependent on available budget)
- Speed studies
- Outreach/education

Next Steps

ATD staff intend to begin collecting public input on this draft framework through in-person engagement with relevant Boards and Commissions, interested community groups, and the public, as well as an online survey on the ATD website. Our objective is to gain feedback on the potential measures and potential strategies proposed within the draft framework. Concurrently, we will be developing program details and formulating a request for the necessary resources to appropriately staff and implement projects through this new program. We expect to come back to Council in late summer 2019 with the next update and final details for a proposed Fiscal Year 2020 launch.

Status of Pending LATM Projects

- Between April and June of 2019, ATD completed construction of asphalt speed cushions on 11 Streets (Jefferson Street, Oakmont Street, Yandall Drive, Kromer Street, St. Edwards Drive, Yaupon Drive, Amberly Place, Burney Drive, Oak Meadow Drive, Painted Valley Drive, and Kromer Street).

- Adjustments to the completed Old Enfield project have been approved and construction is anticipated in summer 2019.

- LATM projects on Fairfield Drive have been designed and permitted. Construction is anticipated in summer 2019.

- LATM projects on Scribe Drive have been designed and permitted. ATD is coordinating with Austin Water Utility due to waterline maintenance in the area. Construction is anticipated by fall 2019.

- There are currently 13 outstanding LATM projects to be permitted and/or installed. Construction is expected to be completed by the end of 2019.
    - Sendero Hills Parkway (asphalt cushions and rubber traffic circle)
    - Freidrich Lane (refuge island)
    - Viewpoint Drive (asphalt cushions and median islands)
    - Old Manchaca Road, west of Manchaca Road (asphalt cushions)
    - Old Manchaca Road, east of Manchaca Road (DSDDs)
    - Riddle Road (asphalt cushions)
    - Southpark Meadows Drive (striping, rubber refuge island, rubber traffic circle)
    - West Mary Street (rubber traffic circle)
    - Mesa Drive (DSDDs)
    - Sara Drive (asphalt cushions)
    - Cohoba Drive (signing and striping, rubber median)
    - Curlew Drive (refuge island)
    - Brentwood Street (asphalt cushions)

*Delivering a safe, reliable, and sustainable transportation system
that enhances the environment and economic strength of the region.*

Speed Management Program Framework (DRAFT)

Program Elements

The following elements will be applied in a context-appropriate manner to all program components (Street Levels 1 & 2 and Levels 3 & 4).

Data and Information

All components of the Speed Management Program will rely on data-driven processes to identify and prioritize streets with the highest need and opportunity for improvement through the use of proven countermeasures to address speeding issues. Need will be identified based on a combination of objective criteria including crash history, observed speeds, and the risk characteristics of the street, along with engineering judgement. Qualitative information will also be utilized, providing insight into the perceived impact of speed management strategies as they relate to improving livability of streets. The Speed Management Program will apply the latest speed management research and best practice and seek to continuously enhance our analytical capabilities through new tools, data acquisition, and other resources.

Toolkit of Engineering Countermeasures

There are various strategies and countermeasures that can be utilized to manage speeds, and the intent is to develop a toolkit so that residents are aware of the options available to implement. The Speed Management Program will apply appropriate combinations of engineering and other countermeasures based on context and proven effectiveness, both from prior projects in Austin and national research. Wherever possible, low-cost, high-impact treatments will be applied first, and gradually escalated over time as needed. Staff will evaluate the effectiveness of projects and look to expand our toolkit by continuously researching new ideas from other cities and testing creative solutions where appropriate.

Methods for Setting Speed Limits

Posted speed limits are set to help communicate and reinforce safe target speeds consistent with the those included in the Austin Street Design Guide and other policy guidance. In support of the new Speed Management Program, ATD will consider new approaches to speed limit setting practices based on best practices enumerated in policy guidance from the Federal Highway Administration ([FHWA)](), National Association of City Transportation Officials (NACTO), National Transportation Safety Board (NTSB), the Texas Strategic Highway Safety Plan, and prior City Council policy direction. Alternative approaches include the Expert Systems Approach (USLIMITS2 - includes surrounding land use, access points, road function, road characteristics, existing vehicle operating speeds (50th and 85th percentile), bike/pedestrian activity, crash history) and the Safe Systems Approach (set speed limits according to the crash types that are likely to occur, the impact forces that result, and the human body's tolerance to withstand these forces). These alternative speed setting methodologies will be considered by the Speed Management Program to recommend adjustments to speed limits on streets selected for projects, when justified.

Holistic Approach: Education and Enforcement

Targeted education and outreach will be applied when speed limit or street design changes occur. These location-specific efforts will supplement ongoing city- or region-wide educational campaigns aimed at culture change around speeding. The Speed Management Program will also dedicate enforcement resources to priority areas or areas where engineering treatments have been implemented and will encourage increased citywide enforcement efforts around speeding. The program will also explore alternative enforcement solutions such as designating speed awareness zones with higher fines for speeding violations, issuing notification letters to drivers who are observed speeding, and encouraging resident-involved speed reduction efforts.

Coordination with other programs

While the Speed Management Program will primarily focus on identifying the highest-need streets from a speed perspective, staff will pursue opportunities to leverage parallel City programs and initiatives, especially where there are shared objectives and priorities. This may include providing education and enforcement resources, or pursuing speed limit changes, in conjunction with projects led by ATD's Transportation Safety Improvement Program, the Corridor Mobility Program, Public Works Department, Watershed Protection Department, Austin Fire Department, Austin Police Department, and others.

Equity

The new Speed Management Program prioritization framework will analyze citywide data and provide greater transparency and consistency in how we evaluate and rank speed mitigation efforts. Staff recognizes that programs dependent on resident requests to initiate analysis may lead to an inequitable distribution of projects. The new program differs from past local speed management efforts in that it will primarily rely on objective criteria to proactively identify and prioritize the highest-priority streets citywide. Appropriate consideration will be given to ensure geographic diversity of projects to be implemented, and this should lead to a more equitable distribution of projects based on the highest need. The program will also seek to establish safeguards against inequitable enforcement practices by:

- beginning all targeted enforcement operations by primarily issuing warnings and educational materials rather than citations,
- ensuring that all outreach materials are bilingual at a minimum, and
- establishing metrics to continuously evaluate equity within program activities.

Evaluation

The program will establish post-project evaluation measures through both quantitative and qualitative approaches. Quantitative measures may include: measured speed reduction (overall and number of highest speeders), crash reduction (overall), serious injury/fatality crash reduction, and impacts on travel times. Qualitative measures may include observations of use and surveys as proxy measures of livability post-treatments. While some measures may be appropriate to measure within months of a treatment, others may take a longer time to establish an understanding of the true impact of any changes. This information will then be used to inform future program decisions about the effectiveness of particular treatments.

Program Details: Street Levels 1 & 2

The primary objective of the Street Levels 1 & 2 component of the Speed Management Program is to improve real and perceived safety and enhance the livability of these "neighborhood and collector" streets by matching vehicle operating speeds with the character of the street. For the purposes of this program, 'egregious' speeding is indicated by drivers far exceeding the posted and/or target speed of the street and can be calculated as either the total number of vehicles or as a percentage of total vehicles.

Prioritization

Prioritization of Street Levels 1 & 2 for potential speed management projects will rely on a weighted scoring system to objectively rank candidate streets based on three categories: speed profiles, crash history, and risk characteristics. The specific measures that will be used within each of these categories will be finalized following public outreach and further analysis of systemwide speeding issues conducted by ATD analysts. A preliminary list of measures includes:

Factors	Potential measures
Speed profile	• Percentage of vehicles travelling 10 mph over posted and/or target speed of street • Total number of vehicles travelling 10 mph over posted and/or target speed of street • 50th, 85th, 95th, etc. percentile speeds
Crash history	• Total number of crashes • Serious injury and fatal crashes • Crashes involving vulnerable users
Risk characteristics	• Street width • Prevalence of on-street parking to create yield-flow operation • Driveway spacing and density • Presence of sidewalks • Presence of or plan to include an all ages/abilities bicycle facility • Land use context • "Institutional" factor (proximity to special destinations like schools, parks, transit, etc.)

Based on a set of measures, input from residents, and professional staff's engineering judgement, candidate streets will be assigned a priority level (Very High, High, Medium, Low, Very Low), similar to the Sidewalk Plan and ADA Transition Plan sidewalk prioritization framework. The number of streets that can be evaluated and the number of speed mitigation projects that can ultimately be implemented in a given year will be based on available resources and program capacity.

Individual requests from residents to address speeding on their street will continue to be received through multiple existing channels (e.g., 3-1-1, email) and through a public-facing website for the program. The first step for individual requests will be to provide a speed profile analysis to compare the extent of the speeding issue in relation to other city streets. Should it meet a minimum speed profile standard, the program will then apply and analyze the same factors and measures to assign each street a priority level. A change from the prior LATM program is that no petition or evidence of support requirement will be included in this new data-driven approach.

Streets will be evaluated regularly, and the priority levels will be updated to reflect needs relative to all streets across the city. For the community to understand how a particular street compares with other evaluated streets, ATD will maintain an online dashboard showing the status and ranking of all candidate streets.

When funding is available to implement the highest priority projects, the Council Member for that district, the neighborhood association and any registered community groups for the area, and homes/businesses in the immediately affected area will be notified and invited to a public meeting to discuss the proposed speed management strategies and provide additional input and context before project plans are finalized and implemented. ATD may consider installing temporary devices, including flexible delineators and painted markings, as initial phases of speed mitigation plans. These tools would allow residents to better visualize plans and navigate footprints of device locations for ATD to collect feedback and accommodate plan adjustments before installing permanent devices.

An important change to note is that the new program will not accept private funds to implement projects at this time. ATD staff intend to successfully establish the new approach to selecting and funding projects and understand program capacity prior to determining whether or how to add a cost-sharing component in an equitable manner.

Speed Management Strategies on Street Levels 1 & 2

For Street Levels 1 & 2 there will be a focus on implementing low-cost, high-impact treatments from the program toolkit on a neighborhood scale, paired with speed limit reductions, education/outreach, and enforcement, as appropriate. Mitigation efforts will first consider less aggressive treatments and ramp up over time, should speeding continue to be a problem. The following table provides a non-exhaustive list of countermeasures that may be appropriate for Level 1 and 2 streets.

Category	Potential strategies
Low-cost, high-impact engineering treatments (Use of treatments will be developed in consultation with emergency response departments.)	- Asphalt speed cushions, chicanes, speed humps, speed table, mini roundabout, traffic circles - Dynamic Speed Display Devices (DSDDs) or other speed-activated signs - Alternative treatments: colored pavement, experimental markings, optical speed bars - Refuge islands and crosswalks - Gateway treatments
Speed limit changes	Speed limit reductions
Education/outreach	- Typical public engagement through written materials, in-person events/meetings - Community-driven efforts (e.g. "Drive Like Your Child Lives Here" signs)
Enforcement	Targeted enforcement, beginning primarily with warnings and escalating to citations should speeding problems persist

Application of Program Elements to Street Levels 1 & 2

The program will apply the different elements as appropriate for the context of these "neighborhood and collector" streets. The types of tools used from the toolkit will begin with low-cost and high-impact countermeasures, as well as considering less aggressive treatments on collectors, to observe effectiveness and iterate as needed. Setting posted speed limits based on reasonable target speeds will be strongly considered as an enhanced livability consideration in alignment with adopted policies and guidelines. The holistic approach for this component encourages strong coordination with neighborhood associations and community groups to assist in education and outreach efforts, as well as creative enforcement strategies seen in other cities. Coordination opportunities are more likely to exist with programs that enhance placemaking, bicycle and pedestrian improvements, and sustainable infrastructure, to name a few. Finally, observations of use and resident surveys may be additional evaluation tools, in conjunction with speed studies, utilized for this program component.

Program Details: Street Levels 3 & 4

The primary objective of the Street Levels 3 & 4 component of the Speed Management Program is reduction in serious injury and fatal crashes on these arterials and corridors through context-appropriate speed management strategies.

Prioritization

Prioritization of speed management projects begins with an initial screening of the highest-crash Level 3 & 4 streets on the High-Injury Network (HIN). All Level 3 & 4 streets will be evaluated over time as program capacity expands. Frontage roads will be considered in a later phase of the Speed Management Program, as they are likely to be included in the next iteration of the HIN. Further

prioritization will use a weighted scoring system to objectively rank candidate streets based on three factors: speed profile, crash history, and risk characteristics. A preliminary list of measures includes:

Factors	Potential measures
Speed profile	- Percentage of vehicles travelling 10 mph over posted and/or target speed of street - Total number of vehicles travelling 10 mph over posted and/or target speed of street 50th, 85th, 95th, etc. percentile speeds
Crash history	- On/Off High-Injury Network - Total number of crashes - Serious injury and fatal crashes - Crashes involving vulnerable users - Crashes with speed/speeding recorded as a contributing factor - Other select crash types
Risk characteristics	- Street width - Driveway spacing and density - Distance between signals - Presence of sidewalks - Presence of or plan to include an all ages/abilities bicycle facility - Land use context (Imagine Austin Activity Center, etc.) - On-street parking - Bus service/transit ridership - Special generators (schools, parks, etc.)

Based on a set of measures and professional staff's engineering judgement, candidate streets will be assigned a priority level (Very High, High, etc.). The number of speed mitigation projects to be implemented in a given year will then be determined based on available resources and program capacity.

Like the Street Levels 1 & 2 program component, Level 3 & 4 streets will be evaluated continuously, and respective priority levels will be updated regularly. These will also be included on the online dashboard showing the status and ranking of all candidate streets.

Speed Management Strategies on Street Levels 3 & 4

For Level 3 & 4 streets there will be a focus on implementing low-cost, high impact engineering strategies paired with speed limit reductions, robust education and outreach, and escalating enforcement campaigns. Certain corridors may require more capital intensive engineering solutions, which may necessitate a corridor plan or countermeasures through ATD's Transportation Safety Improvement Program. The following table provides a non-exhaustive list of countermeasures that may be appropriate for Level 3 and 4 streets.

Category	Potential strategies
Low-cost, high-impact engineering treatments (Use of treatments will be developed in consultation with emergency response departments.)	• Advisory speed signs, flashing warnings, and Dynamic Speed Display Devices (DSDDs) or other speed-activated signs • Pavement markings and rumble strips • Single lane roundabouts • Alternative treatments: colored pavement, experimental markings, optical speed bars • Refuge islands and crosswalks
Extensive engineering treatments	• Full corridor planning or major intersection improvements, which may include signal upgrades, new medians, or adjustments to lane widths
Speed limit changes	• Consider alternative speed setting methodologies • Objective is to set consistent speed limits based on the context, reinforcing appropriate speeds for safer operations
Education and Enforcement	• Outreach through various channels done in conjunction with major initiatives and any speed limit changes • Targeted enforcement, starting primarily with more warnings and ramping up to mostly citations should speeding problems persist • Vision Zero/safety awareness zones (with increased fines)

Application of Program Elements to Street Levels 3 & 4

The program will apply the different elements as appropriate for the context of these "corridors and arterial roadways." The types of tools used from the toolkit will focus on separation of modes to eliminate conflicts and minimize the speed differential between modes when full separation is not possible. Treatments that provide enhanced public understanding of speed concerns, through signage and physical improvements, will be utilized. Setting posted speeds will likely be based on speed studies that utilize methodologies which give stronger consideration to factors like a history of severe injury crashes and high pedestrian and bicycle activity. The holistic approach for this component encourages prioritization of speed enforcement on the High-Injury Network, where the highest concentration of fatalities occur in Austin, as well as exploring new concepts like speed awareness zones. An equitable approach to where enforcement occurs, and advance public notice when possible, will be applied. Outreach efforts will be more extensive in nature due to the broad use of these major corridors by most Austin drivers. Coordination opportunities are more likely to exist with programs like bond-funded bikeways, intersection safety improvements, and the Corridor Mobility Program. And, finally, long-term comparisons of severe crashes will likely be the evaluation tool best suited for this program component.

Additional Background

As Austin continues to grow, many of our streets that were designed decades ago with motor vehicles as the only mode considered are becoming increasingly incompatible with changing land use patterns and community preferences for more walkable and active communities. Effectively managing speed, therefore, is a critical component to creating streets that support safe, convenient travel by all road users and help to achieve City Council goals adopted in Imagine Austin, Austin Strategic Direction 2023, and the recently adopted Austin Strategic Mobility Plan.

Speed management is recognized as a critical focus area to achieve our Vision Zero goals of zero traffic fatalities and serious injuries. Each year more than 10,000 people lose their lives to speed-related crashes nationally. In Austin, speeding was recorded as the primary contributing factor in 24% of fatal crashes between 2013-2017. This makes it the top one of the four behaviors which contribute to most of the fatal crashes in Austin (along with failure to yield, distraction, and intoxication). Per leading research, it is likely that speeding is a factor in a substantially higher number of fatal and serious injury crashes than what is able to be documented currently.

The Local Area Traffic Management Program, which began in 2012, had a sole focus on Street Levels 1 & 2 ("neighborhood and collector streets"). The program produced a few dozen projects that successfully reduced speeds. Some community members raised concerns over time related to the criteria, the process, and the tools used. With the experience and knowledge gained from that program over a six-year period, and enhanced understanding of the impact of speeding on safety outcomes, we are proposing a new approach with adjustments to existing criteria and processes to achieve safer streets throughout Austin.

Many of our current Level 3 and 4 streets were originally designed as rural/suburban highways with wide travel lanes and long distances between pedestrian crossings meant to facilitate fast motor vehicle travel speeds. With increasing development and human activity in these areas, the risk of a severe crash occurring increases dramatically.

While all streets should function with safe speeds, some streets have more egregious and pervasive speeding problems than others. Given limited resources, ATD will prioritize streets to address with speed management strategies. After workshops with the Institute of Transportation Engineers (ITE) and the Vision Zero Network in February 2019, ATD staff researched best practices from national studies and other leading cities to develop a framework for a new Speed Management Program. This proposed framework relies on objective criteria, informed by community and policy objectives, to prioritize streets with the most serious speeding problems for targeted speed mitigation strategies.

National Research and Program Development Guidance

Numerous national studies and reports mention the critical role that speed plays in severe traffic crashes. The National Transportation Safety Board, the Governors Highway Safety Association, the Insurance Institute for Highway Safety, National Highway Traffic Safety Administration, and the Federal Highway Administration are just a few of the organizations whose work we have reviewed to better understand the need for a comprehensive speed management approach.

One National Transportation Safety Board study found that speed was a documented factor in 31% of all traffic fatality crashes nationally. "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 study demonstrates how speeding presents different risks for different road users. People walking, biking, and riding scooters are all much more vulnerable to serious injury or fatality when a speeding car is involved. The risk for vulnerable users more than doubles from 20 MPH to 30 MPH and is increasingly worse at higher speeds. Speed influences the risk of crashes and crash injuries in three ways:
- The distance a vehicle travels from the time a driver detects an emergency to the time the driver reacts is increased.
- The distance needed to stop a vehicle once the driver starts to brake is increased.

- The exponential increase in crash energy. For example, when impact speed increases from 40 to 60 mph (a 50% increase), the energy increases by 125% (IIHS, 2018b).

Multiple national and state-level plans also speak to the need to reduce conflicts among users and minimizing speed differentials when conflicts cannot be eliminated entirely.
- FHWA "Achieving Multimodal Networks" – "Where modes come together, the design should eliminate conflicts to the greatest extent possible. If it is not feasible to eliminate the conflict entirely, designers should minimize the speed differential between modes to ensure that if a crash occurs, the severity of the injury is likely to be lower...Designers have the flexibility to set design speeds lower than the posted speed limit."
- NACTO Urban Street Design Guide - "There is a direct correlation between higher speeds, crash risk, and the severity of injuries... Design streets using target speed, the speed you intend for drivers to go, rather than operating speed. The 85th percentile of observed target speeds should fall between 10–30 mph on most urban streets."
- Texas Strategic Highway Safety Plan – Speeding Emphasis Area: Strategy #1 - Use the concept of establishing target speed limits and road characteristics to reduce speeding.

This literature review of best practices has produced the key program elements we are proposing for Austin's Speed Management Program. This includes: Data and Information, Toolkit of Engineering Countermeasures, Methods for Setting Speed Limits, Holistic Approach with Education and Enforcement, Coordination with Other Programs, Equity, and Evaluation. These program elements are presented in more detail within the Speed Management Program Framework (DRAFT).