

STAC Recommendations Summary

The [Sustainable Transportation Advisory Council \(STAC\)](#) makes recommendations to the MnDOT Commissioner to help the agency reduce carbon pollution from transportation, consistent with the MnDOT statutory goals outlined in Minnesota statute 174.01, the Next Generation Energy Act, and the annual MnDOT Sustainability Report. The following recommendations were voted on by STAC members during the December 10, 2020, STAC meeting. STAC ex-officio members did not vote, nor did anyone from MnDOT. MnDOT and other external partners, where appropriate, will review and comment on the recommendations in March 2020.

Powering and Fueling Transportation Workgroup Recommendations

Workgroup Purpose

The Fueling and Powering Transportation Workgroup was created to develop GHG emissions reduction recommendations related to EV charging infrastructure, incentives, biofuels and clean fuels policies, and vehicle fuels and efficiency, including emerging fuels like hydrogen, for the Minnesota Department of Transportation.

Membership

- Rolf Nordstrom, Great Plains Institute (GPI), Co-chair
- Katie Frye, Minnesota Power, Co-chair
- Chris Clark, Xcel Energy
- Holly Hinman, Xcel Energy
- Rep. Frank Hornstein, Minnesota House of Representatives
- Dan Schellhammer, Mid-state Reclamation, Inc.
- Michael Noble, Fresh Energy
- Anjali Bains, Fresh Energy
- Lisa Thurstin, American Lung Association
- Katie Bell, Cummins

Top 3 Recommendations

1. Develop a clean fuels policy

Why is this important? A Clean Fuels Policy has been demonstrated to increase the use of lower carbon intensity fuels (such as biofuels, electricity as a transportation fuel, and hydrogen), which supports Minnesota's greenhouse gas reduction goals as outlined in the Next Generation Energy Act of 2007. Economic impact studies demonstrate large net-positive impacts for the economy, with specific benefits in fuel producing and fuel consuming sectors of the economy. Clean Fuels Policies attract investment in emerging clean fuel technologies, for example aviation biofuel, renewable diesel, and hydrogen. By increasing the use of cleaner fuels, they create reductions in criteria air pollutants. Further, they can support increased investments in farm-level conservation practices with potential for soil health and water quality benefits and economic benefits for farmers.

How can this move forward? MnDOT should encourage the development of a statewide clean fuels policy within the Walz administration and use its authorities to help advance that policy. A Clean Fuels Policy is a technology-neutral market-based policy that sets a standard for lowering the carbon intensity of transportation

fuels over time (for example, a 15% required carbon-intensity over ten years). The policy provides incentives for deployment of lower carbon fuels, benefiting fuel consumers and clean fuel producers. The Council recommends specifically a clean fuels policy that:

- Supports the transition to a fully decarbonized transportation and agricultural system by mid-century
- Advances equity (e.g. affordability of and access to low and zero emissions vehicles, including public transit) and reduces negative health impacts from air pollution for overburdened communities while ensuring other vulnerable communities do not experience an increase in air pollution (e.g. ground-level ozone and particulate matter exposure from liquid fuel production and combustion)
- Includes a soil health and water quality program that incentivizes sustainable and regenerative agricultural practices (with special emphasis on nitrogen air and water pollution) and crops that improves soil health and water quality from farming and biofuels production and distribution
- Includes safeguards and incentives to protect and enhance environmental integrity, including biodiversity, and to promote job creation and equitable and sustainable economic growth.
- Uses available peer-reviewed health and pollution data to inform the development of the Clean Fuels Policy.

How does this advance equity and environmental justice? Clean Fuels Policies have minimal impacts (if any) impacts on fuel prices, and thus do not impose a disproportionate impact on lower income fuel consumers. Clean Fuels Policies create reductions in criteria air pollution, benefiting geographic areas with disproportionate negative health impacts from transportation fossil fuel consumption. Other jurisdictions with Clean Fuels Policies have taken additional steps to carve out a portion of credit revenues to benefit low income and minority communities.

2. Establish rebates for public and private light-, medium-, and heavy-duty electric vehicles, including dealership support and consumer rebates

Why is this important? Purchase incentives address a critical barrier to adoption, the current up-front cost differential for EVs. The up-front-cost is declining but is not expected to hit cost parity with conventional vehicles for a few years. EV incentives have been demonstrated in other states to increase EV adoption.

Studies conducting statistical analysis of market data using both aggregate and disaggregate data have found that purchase incentives are correlated to PEV market shares. Further, studies that use choice experiments have found that consumers are more likely to purchase a PEV if purchase incentives are available. Due to the abundance of literature using diverse methodologies, we can confidently state that PEV incentives are an effective policy measure in increasing PEV sales. Policy makers wishing to reduce transportation related emissions can use purchase incentives to increase PEV sales. Nonprofits do not qualify for federal EV tax rebates; therefore, state rebates have greater value to them.

How can this move forward? MnDOT should work with stakeholders to develop eligibility and technical details for an incentive program that provides rebates to eligible fleets and consumers to reduce the incremental cost of qualified electric or plugin-hybrid vehicles of LD, MD or HD at the time of the purchase or lease. The rebates should be available for consumers purchasing e-bikes. A decreased incentive amount should be available for plug-in hybrid electric vehicles and the incentive should be phased out in the future.

How does this advance equity and environmental justice? Low-income communities and communities of color

disproportionately feel the impacts of vehicle pollution and can benefit the most from the clean air and cost-saving benefits of EVs. Programs for light-duty vehicles can be designed to assure access for lower-income consumers and assure that incentives aren't only directed towards higher-cost vehicles. Policy design options include not allowing incentives above a certain purchase price, means-testing incentives, offering additional incentives for lower-income consumers, and offering incentives for low-cost used EVs. Programs can also be designed to place more EVs (particularly MHD EVs) in areas that are hard hit by poor air quality to achieve measurable improvements through diesel combustion reduction.

3. Increase investment in EV charging infrastructure, beyond existing VW settlement investments

Why is this important? By increasing access and availability of EV charging through infrastructure investments, we can address barriers to EV adoption such as upfront costs, range anxiety, and lack of charging access. Increasing EV adoption can improve air quality and reduce carbon emissions.

How can this move forward? MnDOT should use available health and pollution data to inform increased investment in EV infrastructure and identify and remove barriers to the deployment of that infrastructure (e.g. current prohibition against EVSE at rest stops). This would increase access to EV charging and encourage EV adoption.

How does this advance equity and environmental justice? Potential to provide electric mobility services for all, including buses and public EV charging in communities. Decreased use of internal combustion engines results in universal air quality benefits. High visibility charging infrastructure within the community could serve all of Minnesota, including Minnesotans living in multi-family buildings. This could be an additional important step alongside investments along transportation corridors.

Member voting of top 3 recommendations:

Top three recommendations were approved to move forward by voting STAC members.

Second Tier Recommendations

1. Minnesota becomes a signatory on a multi-state EV charging corridor Memorandum of Understanding with other Midwestern states.
2. Examine value of NextGen highways, update Minnesota's utility accommodation plan, initiate multi-stakeholder process, and integrate other infrastructure as we entertain the NextGen Highways concept.
3. Develop a state-level plan to support medium/heavy duty electric vehicles.
4. Policy incentives to support increased manufacturing of EVs and EV supply chain.
5. E15 becomes standard for gasoline.
6. Incentives for higher blend infrastructure.
7. Fully fund the Bio-incentive Program.
8. Minnesota becoming a signatory on existing Zero Emissions Truck & Bus Memorandum of Understanding (ZEV Truck & Bus MOU).

Member voting of second tier recommendations:

Second tier recommendations 1 - 4 and 8 were approved by voting STAC members. Recommendations 5 – 7 (in red) will be revisited in future STAC discussions.

Reduce VMT and Improve Transportation Options Workgroup Recommendations

Workgroup Purpose

The Reducing Vehicle Miles Traveled (VMT) and Improve Transportation Options Workgroup was organized in August 2020 to develop recommendations that address transportation options, including biking, walking, and transit; MnDOT project planning and project selection process; and land use and transportation.

Membership

Work group participants include STAC members, STAC ex-officio members, and invited technical experts:

- Ashwat Narayanan, Co-chair — Our Streets Minneapolis (STAC member)
- Emma Struss, Co-chair — City of Bloomington (STAC member)
- Dorian Grilley — Bicycle Alliance of Minnesota (STAC member)
- Katie Jones — The Center for Energy and Environment (STAC member)
- Peter Wagenius — Sierra Club North Star Chapter (STAC member)
- Russ Stark — City of St. Paul (STAC member)
- Sen. Scott Dibble — Minnesota State Senate (STAC ex-officio member)
- Vishnu Laalitha Surapaneni — University of Minnesota (STAC member)
- Nick Ray Olson — Our Streets Minneapolis (Technical expert)
- Sam Rockwell — Move MN (Technical expert)

Top 3 Recommendations

1. Adopt a statewide goal of reducing VMT by 20% by 2050.

Why is this important? Driving is responsible for the largest share of carbon emissions in Minnesota and is growing. Carbon reduction gains made through more efficient vehicles, and fuel economy standards have been offset by large increases in VMT. Minnesota will not be able to achieve its carbon reduction goals without a significant reduction in VMT, paired with other strategies like electrification of the transportation system.

Setting a VMT reduction goal will identify this strategy as a priority for MnDOT and help evaluate yearly progress. This goal is in alignment with Minneapolis and St. Paul's established 38-50% VMT reduction targets. Establishing a VMT reduction goal is also in alignment with other state DOT VMT reduction goal efforts, such as in Delaware, California, and Washington State.

How can this move forward? We recommend that MnDOT should:

- Incorporate reducing VMT in the purpose and need section of all major MnDOT led transportation projects.
- Apply a VMT reduction goal on MnDOT's current project "Rethinking I-94" that seeks to reconstruct Interstate 94 between Minneapolis and St. Paul.
- Establish a statewide VMT reduction goal and track it in the annual MnDOT sustainability report.
- That statewide goal should then be broken down into specific goals for different geographic areas based on the ability of different areas to shift modes of travel. The greatest VMT reduction should be expected in the Twin Cities Metropolitan Area where transit, biking, and walking are most feasible, followed by

major regional centers. The smallest reduction in VMT should be expected in rural areas that depend on agriculture.

How does this impact equity and environmental justice? The impacts of climate change are felt world-wide, but they are disproportionately worse for people of color. Reducing VMT will have immediate, lasting benefits for those who have historically been marginalized—specifically Black, Indigenous, People of Color (BIPOC). BIPOC community members breathe worse air and are at a higher risk of traffic crashes. These disparities are partially a result of transportation decisions that have prioritized automobile infrastructure over other modes of transportation. Lowering VMT will help reduce both particulate matter emissions and reduce the risk of traffic crashes, resulting in improved equitable outcomes.

2. Stop expanding highway capacity to reduce congestion.

Why is this important? As we seek to successfully address climate pollution from the transportation sector, we would all benefit from bringing other disciplines to bear like public health and economics. In public health, the Hippocratic Oath calls on us to “first do no harm.” While clearly unintended, we now know that trying to address congestion by expanding highways not only doesn’t work, it is doing harm. Experts across disciplines including public health and economics have documented this and the data is clear—highway capacity expansion does not reduce traffic congestion over the long term. Instead, capacity expansion projects have been shown to induce more driving—leading to more congestion and carbon emissions. A recent study of the 100 largest urbanized areas in the US found that freeway capacity grew by 42% from 1993 to 2017—much faster than a 32% increase in population growth—and traffic congestion increased by 144% in the same time period.¹

Highway capacity expansion projects are also some of our most expensive projects. Additional costly expansions leave fewer financial resources for the maintenance of our existing system and investing in low carbon modes of transportation. This will also promote job growth. Dollar for dollar, repairing and rebuilding existing infrastructure puts more people to work than expanding new lanes.

How can this move forward?

- Focus the limited resources available on maintaining existing infrastructure and providing choices for travelers.
- Act right away by adding this goal into projects like “Rethinking I-94”.

How does this impact equity and environmental justice? Highway expansions have caused lasting harm to communities of color across the United States. For example, historically black communities like St. Paul’s Rondo Neighborhood and North Minneapolis were divided by the construction of Interstate 94 through them—destroying many Black-owned homes and businesses. These highways still continue to have negative impacts on these neighborhoods—cutting them off from accessing jobs and opportunity, exposing them to high particulate matter emissions and noise, and reduced property values. Continuing to expand highway capacity at this stage is to perpetuate harm knowingly. Moving away from capacity expansion projects will help mitigate some of these impacts.

¹ Kent Hymel, If you build it, they will drive: Measuring induced demand for vehicle travel in urban areas, *Transport Policy*, Volume 76, 2019, Pages 57-66, ISSN 0967-070X, <https://doi.org/10.1016/j.tranpol.2018.12.006>.

3. Prioritize transit and high occupancy vehicles on MnDOT owned right of way

Why is this important? A critical piece of reducing VMT is providing convenient and reliable low and zero carbon options for people to access their destinations. One way to do this is to repurpose existing lanes to prioritize high-occupancy vehicles. This will prioritize people over single-occupancy vehicles, reducing travel times for mass transit and other high occupancy vehicles. It will also cost-effectively provide increased mobility, connecting people who may not have access to cars to jobs and opportunity.

How can this move forward?

- Prioritize high occupancy and low carbon design alternatives using existing lanes in the ‘Rethinking I-94’ and other projects.
- Prioritize multimodal movement along and across highways.

How does this impact equity and environmental justice? Historically BIPOC communities have higher rates of poverty and continue to be marginalized in transportation decision-making. Transportation access is one the strongest indicators of being able to break out of a cycle of poverty. Reliable mass transit access helps connect people to jobs, school, groceries and opportunity.

Providing transportation choices also helps advance health equity. Our current auto-centric approach to transportation and land use does not support active transportation like biking and walking, increases cardiovascular disease and diabetes, and exposes people, including especially growing children, to pollution which causes asthma and other negative health effects.²

In addition, multiple studies show that regions which invest in multi-modal choices including transit, walking, and biking are more economically competitive. In particular, those regions are better able to attract and retain young people who increasingly choose first where they want to live first before looking for a job.^{3,4}

Member voting of top 3 recommendations:

The top three recommendations were approved by voting STAC members.

Second Tier Recommendations

- Conduct a spending audit across project categories to identify areas where there may be flexibility in spending with the goal of moving funds away from highway capacity expansion and into maintenance, public transit, biking, and walking.
- Support efforts by local governments to dedicate their right of way to low carbon and active transportation.
- Discard auto-centric metrics like Level of Service (LOS), in favor of people-centered metrics like reducing VMT, providing choices for the maximum number of travelers, and accessibility and safety for all users.

Member voting of second tier recommendations:

Second tier recommendations were approved to move forward by voting STAC members.

² Howard Frumkin, Lawrence Frank and Richard Jackson, Urban Sprawl and Public Health. 2004.

³ The Segmentation Company, “Attracting College-Educated, Young Adults to Cities”. 2006.

⁴ Christopher Leinberger, The Option of Urbanism: Investing in a New American Dream. 2009.

Transportation System Resilience Work Group

Workgroup Purpose

The Transportation System Resilience Workgroup (TSRW) was organized in August 2020 to develop recommendations that address transportation resilience to climate change. The TSRW identified two opportunities for improving resilience of the transportation system:

1. Reducing impacts to the transportation system from extreme weather and climate change, and
2. Improving construction practices and materials to enhance system performance.

The initial information gathering process revealed that several committees and/or government agencies within the state of Minnesota are actively discussing and providing feedback on reducing impacts to the transportation system from extreme weather and climate change. Several of these committees will be sharing their work product with the Minnesota Department of Transportation (MNDOT). Thus, TSRW focused efforts on recommendations related to improving construction practices and materials to enhance system performance.

Membership

Work group participants include STAC members, STAC ex-officio members, and invited technical experts:

- Tara Wetzel, Co-chair — Mathy Construction Company (STAC member)
- Greg Ilkka, Co-chair — Steele County (STAC member)
- Dan Schellhammer — Midstate Reclamation, Inc. (STAC member)
- Chris Sagsveen — Hennepin County (Technical expert)

Recommendation Focus Areas 2021

The TSRW did not bring recommendations for voting at the Dec. 2020 STAC meeting. They will share recommendations in 2021 related to the following focus areas:

1. Proactive asset management
2. Design-build project delivery
3. Dedicated trucking lanes

1. Proactive Asset Management

Why is this important? Proactive asset management of the transportation system preserves the strength and quality of transportation systems, which keeps costs down in the long run by reducing the severity of major issues. Early and often scheduled maintenance of transportation systems, especially in areas experiencing extreme climate variability such as the Midwest, often slows the rate of system failure (e.g., freeze/thaw damage caused by water intrusion from cracking), extends the life cycle performance, and maximizes the financial investment. Effectively, a well-maintained system is more resilient than a poorly maintained system.

Transportation systems are a major financial asset benefitting the community. Efficient and reliable mobility for goods and services provide healthy communities, increased market integration, and improved quality of life. In short, transportation infrastructure is a valuable community asset that must be regularly taken care of and maintained in order to provide citizens with the level of service and value they rely on and expect.

How can this move forward? The uncertainty in sustainable government funding coupled with a decrease in comprehensive user fees, such as gas taxes, has changed the landscape on safe, reliable and quality transportation systems. Proactive asset management of transportation systems involves the application of engineering, financial, and administration decisions to maximize the system performance in return for the most cost-effective financial input. Unfortunately, historical failure to proactively maintain transportation systems has caused a backlog of irreversible deterioration of transportation systems. This weakened transportation system suffers from decreased resiliency to major system failures forcing decision makers to operate in a reactive versus proactive maintenance phase.

Proactive asset management of transportation systems must gravitate from a reactive phase to a more proactive phase with carefully planned early and often maintenance. Additionally, reliable and sustainable funding must be secured so that comprehensive and strategic preventative maintenance programs can be implemented systematically at both the state and local level. The main objective is to apply the right treatment at the right time to achieve the desired level of service.

How does this advance equity and environmental justice? Effective transportation systems support economic development and growth and provide important social benefits by offering access to employment, social, health and education services. Offering reliable and affordable transportation options for low-income communities and communities of color disproportionately removes barriers for equitable employment opportunities as well as other necessary community services.

Proactive asset management advances environmental justice by prolonging pavement life cycle. This maximizes the useful life of the transportation system and the energy used to create it. Proactive asset management will also minimize environmental impacts related to unnecessary construction traffic delays and optimize the use of high energy demand material resources. As a result, the overall carbon footprint is lower per lane mile over the life of the road.

2. Design-Build Project Delivery

Why is this important? Design-Build (DB) is a mindset resembling the historic concept of a Master Builder. The Master Builder was not a contractor, architect, or engineer. Instead, the Master Builder represented the integration of all three disciplines into an integrated service. Because DB projects are completed under a single contract, project delivery is streamlined using an integrated team of designers and builders forging an alliance between subject experts to deliver the most innovative project design and construction. DB project delivery encourages unified project recommendations and solutions by a team of qualified members incorporating collaborative problem-solving and innovation to deliver a desired outcome: transportation system resiliency. Conversely, traditional project delivery is bound by tight project specifications restricting innovation and problem solving by objective; thus, limiting the ability to quickly adapt to climatic change and extreme weather events. Therefore, increased use of DB project delivery for smaller state DOT and local agency projects could offer innovative solutions for increased resiliency related to climatic change.

How can this move forward? The Design-Build (DB) process is not new to MnDOT; however, past projects have focused on mega-sized projects. Conversely, the use of DB project delivery on smaller projects, especially local agency projects, provides cumulative effects for increased resiliency on the entire

transportation system. Specifically, DB project criteria could incorporate resiliency and sustainability goals or objectives in the design and construction delivery process.

DB project success is evident in various areas of the country where the mindset has shifted to collaborative teamwork in the way projects are delivered. Organizations, such as Design-Build Institute of America (DBIA), offer robust and comprehensive tools and training to assist both private and public sectors on utilization of the DB process. These organizations combined with reaching out to private/public entities successfully incorporating DB can assist in the migration of smaller scale projects into the DB framework. Often smaller local agencies will adopt methodology and specifications in use by the state DOT. Thus if state DOT has successful use of the DB process on a smaller scale, local agencies will employ this model and be able to readily meet resilient objectives using limited in-house staff experts and within budgetary constraints.

How does this advance equity and environmental justice? The Design-Build (DB) project delivery allows the project owner to set project objectives for construction and design. Thus, projects with the potential to disproportionately impact low-income communities and communities of color can employ specific objectives or project goals to ensure equity and environmental justice. In turn, the DB entity would provide innovative solutions to meet the project objectives for equity and environmental justice.

3. Dedicated Trucking Lanes

Why is this important? Pavement design is based on equivalent single-axle load (ESAL), which does not consider the weight from a passenger vehicle, like a car. It is because heavy truck traffic is significantly more detrimental to pavement performance and is the controlling parameter in pavement design. Whereas passenger vehicle weight contribution is comparatively negligible. Because most highways do not restrict trucks, the entire span of the roadway must be designed to accommodate truck traffic. In multiple lane highways, limited dedicated trucking lanes could be designated similar to a carpool lane. The dedicated truck lane(s) could be designed and built to accommodate truck weight while car only lanes could be engineered to more economical designs for cost savings resulting from reduced material costs and increased life cycle of the car only lanes.

How can this move forward? Similar to the designation of carpool lanes, multi-lane highways could designate dedicated trucking lane(s) specifically designed and constructed to carry truck traffic. The different types of weight bearing lanes would be separately evaluated for preventative maintenance and reconstruction based on pavement performance.

How does this advance equity and environmental justice? It is likely that multi-lane highways traversing low-income communities and communities of color will experience a decreased traffic impact from dedicated trucking lanes as well as a decrease in major reconstruction projects and construction traffic delays involving all lanes of traffic. Although a dedicated trucking lane will continue with a typical life cycle span, it is likely that car only lanes will have an increased life cycle span minimizing environmental impacts related to unnecessary construction traffic delays and optimizing the use of high energy demand material resources. As a result, the overall carbon footprint is lower per lane mile over the life of the road.