Pollution Reduction Planning for Transportation: Briefing update
June 2021

Executive Summary

The passage of HB-1261 set Colorado on a course to dramatically reduce greenhouse gas emissions across all sectors of the economy. As the leading source of Greenhouse Gas (GHG) emissions in Colorado (and nationwide), transportation has a critical role to play in helping achieve these goals. The state's 2020 Greenhouse Gas Roadmap (Roadmap) identified nine different strategies for transportation. Of these, two are underway now--the Employee Trip Reduction Rule proposed in May by the Air Quality Control Commission and a rulemakings on pollution reduction planning for transportation discussed in this memo; one has been accomplished through SB 260 - securing new revenue to fund infrastructure and incentives for electric cars, trucks and buses; and one has begun through HB 1117 and HB 1271 - offering incentives for land use decisions by local governments that reduce VMT and GHG emissions. Collectively, these strategies, as they are implemented over the next several years, combined with the effects of low and zero emission vehicle rules, are designed to achieve the 2030 target of reducing GHG pollution from transportation by 12.7 million tons per year below 2005 levels. Importantly, the pollution reduction planning rule that this memo describes, while an essential and important element of this strategy, is only one element of a comprehensive strategy and is not intended to achieve the targets in isolation.

This paper focuses on the intricacies of establishing a pollution-reduction framework that is among the first of its kind in the U.S. The thinking shared here reflects months of still-ongoing conversations with transportation planners, elected officials, industry, environmental groups, other state transportation departments and thought leaders across the country. In particular, the state's five metropolitan planning organizations (MPOs) - CDOT's partners in transportation planning - have provided countless hours of input. Our intent here is to describe the collective and draft work and thinking to date and elevate those issues that merit particular focus in the coming weeks and months as these rules move forward.

This paper also discusses the broader context for this effort. Making progress towards the transportation targets will also require actions by other agencies and across a number of areas, such as ongoing focus on the medium and heavy duty truck sector, and contributing to the development of post-2025 light duty vehicle standards. This sector encompasses the millions of individual choices people make every day that have an impact on climate, and the variety of strategies outlined below are all collectively necessary to achieve the state's ambitious and necessary climate goals. The policies contemplated by CDOT and the Transportation Commission are neither the first nor the last steps needed to achieve the totality of Roadmap goals for the transportation sector, and should be viewed as one step among many.

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I. Overview

In response to the new legislative language in SB260[1] and months of stakeholder discussions on this concept, CDOT is currently planning to propose to the Transportation Commission (TC) that they undertake a formal rulemaking process for pollution reduction planning, which would amend the current state planning rules in order to reduce pollution and greenhouse gas levels for transportation. This would separate targets for CDOT and MPO transportation plans. This rule will include establishment of processes to demonstrate and enforce compliance.

From a broader standpoint, this proposal helps the state make progress towards its legislatively adopted GHG reduction goals[2] and fulfill a key recommendation from the Greenhouse Gas Roadmap to reduce vehicle miles traveled by "Integrat(ing) State GHG Pollution Standards and Analysis in Regional, and Statewide Plans." Altogether, the Roadmap includes nine recommendations for the transportation sector, including improving the performance of light, medium, and heavy duty vehicles, transportation demand management, and incentivizing smart local land use, electrification infrastructure and fleet turnover. The sum of emissions reductions from all of these strategies, once fully developed, would be designed to add up to the 2030 transportation sector targets set in the GHG roadmap and to align with the 2050 goals adopted in HB 19-1261.

The Transportation Commission rule would focus on the connection between public sector-funded transportation projects and vehicle travel; namely that what we build, combined with

[1] SB260 spells out statutory requirements for the TC to adopt procedures and guidelines requiring the Department and Metropolitan Planning Organizations (MPOs) to "[i]mplement relevant rules and regulations issued pursuant to Section 25-7-105" (CRS) and "[o]therwise reduce greenhouse gas emissions to "help achieve the statewide greenhouse gas pollution reduction targets established in Section 25-7-102 (2)(g)."

[2] The 2019 Climate Action Plan to Reduce Pollution (HB 19-1261) set a series of statewide greenhouse gas reduction goals (at least 26% in 2025, 50% in 2030 and 90% in 2050).

the emissions of vehicles themselves, influences driving patterns and commensurate GHG pollution. As this briefing paper will discuss, this connection is exceedingly complex in practice, particularly given the number of independent actors -- namely every traveler and vehicle owner-- who have discretion over their personal travel choices and will not be governed by this rule and policy. Thus, the rules must isolate what role state and regional governments play in affecting travel through decisions about where and how to build infrastructure. Upon completion of this rule, Colorado will become only the second state in the nation to establish GHG-related reduction requirements on transportation planning--and the first in the intermountain West. Colorado's policy would be unique in structure, leveraging the competencies and authorities of specific institutions that govern transportation planning within the state.

Given the intricacies involved with establishing this largely unprecedented policy and the importance of doing so in a manner that reflects the Colorado Way, there are a number of key details of particular importance in these rules: what the pollution standards should be for the state and regions; the precise mechanics of how the compliance and enforcement cycle should operate and the underlying dynamics between the two relevant agencies and commissions; initial implementation timelines; and -- importantly -- the accounting for specific policy choices and mitigations within project plans.

This document seeks to address all of these key details and other related considerations as this process moves forward.

II. Embracing the Challenge of Addressing Greenhouse Gas Pollution at CDOT

In 2020, transportation surpassed electricity as the leading source of GHG pollution in Colorado. In recognition of the importance of this issue, the Colorado Department of Transportation (CDOT) and the Transportation Commission have embarked on a massive undertaking over the last two years to reimagine the Department's approach to clean transportation, working in tandem with the Colorado Energy Office (CEO), the Colorado Department of Public Health and the Environment (CDPHE), local partners, and stakeholders across the transportation sector. These changes are reflected in areas including **staffing and governance, enhanced focus on electrification and clean vehicles, expanding transportation choice and multimodal options, and undertaking significant improvements to modeling and planning conventions within the Division of Transportation Development.** Importantly, these efforts go hand in hand with an enhanced focus on improving community outreach across the state, and in disproportionately impacted communities, to ensure that Coloradans voices are represented in the choices that we make and the priorities that we establish as a Department.

II.A. Staffing and Governance:

In order for CDOT to equip itself as an organization to address today's challenges, we must

prioritize them within the organization. Within the Department, the last few years have brought significant improvements towards integrating air quality and climate considerations throughout the organization--as we strive to improve the quality and efficiency of departmental output overall and across disciplines.

Two years ago, CDOT established the Office of Innovative Mobility (OIM), which integrates the Department's multimodal efforts through the Division of Transit and Rail with an emerging focus on incorporating electrification and other zero emissions vehicles into our system and equipping our infrastructure to accommodate them. This office reports directly to the executive director. OIM has recruited new leadership to elevate the role of DTR, along with expanding expertise on electrification and mobility choices.

The Division of Transportation Development (DTD), which houses CDOT's planning and modeling functions as well as its research arm, has also strengthened its institutional capacity, both overall and with particular respect to the environmental impacts within CDOT's influence. New leadership within the research division has made air quality a priority, including instituting a new air quality monitoring program to test state of the art technology for measuring pollution in communities living adjacent to the highways. Moreover, DTD has hired the Department's first ever GHG specialist, and an expert to focus on partnering with local communities to more fully contemplate land use implications when designing infrastructure projects across the state.

Importantly, most of CDOT's work "on the ground" takes place in our five planning regions, all of which have strengthened their capacity to integrate multimodal factors into project plans -- with several regions bringing on specialists in areas like transit and multimodal planning. Indeed, improving our air is an all-of-CDOT effort that requires technical capacity and collaboration across the organization.

II.B. Electrification and clean vehicles:

Colorado has a lot to gain from electrifying the transportation sector because of the rapid gains we are making with decarbonizing our electrical generation systems, which results in vehicles that are both cleaner today and will become cleaner over time as more renewable sources are added to the grid. Electrification of vehicles can also provide reliability benefits to the grid.

One key advancement in 2019 was the exploration and eventual adoption of a ZEV standard, through AQCC's Colorado Low Emission Automobile Regulation[3], with Colorado becoming the first state in more than a decade and the first non-coastal state to do so and the first ever to do so with support from the auto manufacturing industry. The rule, which included incentives for early action, has helped motivate manufacturers to focus on making ZEV stock available to Colorado consumers faster. CDOT played a key role in securing the negotiated agreement of

[3] 5 C.C.R. § 1001-24, Part C.

the auto industry for our ZEV rule.

In addition to supporting greater vehicle choice for Coloradans via the ZEV standard, CDOT is also collaborating with its partners to invest in charging infrastructure that fills geographic gaps that exist in the charging network. Some areas of particular focus include the electrification of the state's 26 Scenic & Historic Byways as well as other rural and recreational destinations such as state parks, ski resorts, trailheads, and the like. These investments play multiple roleS: providing "range confidence" for drivers to support greater EV adoption, fostering local economic development for smaller communities seeking EV tourism and bringing charging options to areas less likely to see private investment in the short-term. On a regional scale, CDOT also actively participates in planning coordination with our 7 neighboring states via the REV West Partnership as a means of fostering more seamless EV charging for interstate travel across the Intermountain West.

Separate from the passenger vehicle market, CDOT also works closely with transit agencies across the state to support the electrification of their fleets, from planning and education to vehicle purchases, charging equipment installation, and sharing of data and best practices. Since 2019 we have awarded more than $21 million in Volkswagen Settlement funds to 10 agencies for the purchase of 39 electric buses statewide while providing training and support to many other fleets beginning their transition process. Senate Bill 260 adds ongoing funding for this purpose through a new clean transit enterprise housed at CDOT. Our goal is to deploy at least 1,000 transit ZEVs statewide by 2030.

Additionally, CDOT staff is collaborating with CEO, CDPHE, the Colorado Motor Carriers Association (CMCA), and stakeholders across the state to develop a Clean Trucking Strategy that will reduce the GHG and air quality impacts of medium and heavy duty (MHD) freight and delivery vehicles while maintaining the important economic benefits that this sector provides. As part of that effort, Colorado signed an MOU with 14 other states and the District of Columbia to target a 30% MHD ZEV market share by 2030 and a full 100% MHD ZEV market share by 2050.

Finally, it is important that CDOT lead by example in the realm of transportation electrification. The percentage of new alternative fuel vehicles ordered by CDOT for our own fleet has continually increased from FY18 to today, with more than 90% of the 61 FY20 vehicles ordered being alternative fuel or electric, and many of them replacing half ton pickup trucks. With the FY21 vehicle order, 28% of the CDOT light duty fleet will be CNG, Hybrid, PHEV, or EV. In terms of medium and heavy-duty vehicles, CDOT Maintenance & Operations has purchased 9 plug-in hybrid electric aerial/lift trucks that reduce idling when the vehicles are working on signs, bridges, lights and other structures. CDOT is also in the process of procuring and piloting 2 electric street sweepers partially funded through VW Settlement grants, as well as exploring opportunities for acquiring all-electric pickups as they begin to

enter the market.

II.C. Expanding transportation choice and multimodal options:

As in the electrification sphere, there has been a significant transformation in how CDOT supports multimodal options throughout the state. At a leadership level, CDOT created the Office of Innovative Mobility and brought the existing transit division under senior leadership. A primary focus area has been building upon the existing success of the Bustang network, and there is a real strategy behind the development of this transit option that is only growing its appeal for possible users; it is not an accident that Bustang's farebox recovery and popularity are so strong.

CDOT is not only maintaining its existing high-quality transit service, but also going further with expanded Bustang-Outrider service to four new routes. This effort complements the buildout of new and expanded mobility hubs along I-25 that will foster multimodal connections between Bustang routes and local transit services while laying the groundwork for future Front Range Passenger Rail service. From a data and performance tracking standpoint, CDOT is also currently developing a "transit emissions dashboard" to track GHG emissions from our Bustang and Outrider commuter services and how they decrease with increased ridership and eventual electrification of the vehicles. CDOT expects to expand the dashboard to include non-CDOT transit services over time.

Over the last year, CDOT also launched multiple efforts supporting main streets throughout the state, through a first of its kind effort to bolster active transportation and outdoor commerce on state and local roads that anchor communities. The Safer Main Street program, focused on the Denver metropolitan area, awarded about $60 million to more than 30 capital infrastructure projects focused on improving the safety of urban arterial roads. Statewide, the Revitalizing Main Streets Program has awarded close to $6 million to more than 100 projects statewide that range from fixing sidewalks, to improving lighting for pedestrians, to helping cities and towns implement safety barriers for outdoor commercial space on roadways. This successful program received an initial $30 million as part of state stimulus, and CDOT is evaluating applications for forthcoming awards. Moreover, SB260 included future funding to ensure that this important program continues.

CDOT is also one of several agencies focused on reducing emissions through Transportation Demand Management (TDM) — by providing incentives, supporting strategic planning, and leading by example. This past year, the new CanDo Telework Grant awarding $234,000 for 41 projects to local governments and non-profit organizations to support teleworking both during the pandemic and over the longer-term.

CDOT has taken a variety of planning measures including completed Phase 1 and Phase 2 of the

State TDM Plan, which assessed various strategies for their return on investment and found telework and vanpools to be the best performance. Staff have also updated the State TDM website, developed a new Healthy Communities Coordinator position to support TDM projects and programs, and implemented many of these strategies during the construction phases of the Grand Avenue Bridge replacement in Glenwood Springs and I-25 Gap project in Douglas County, among others.

Finally, CDOT is committed to GHG emissions reductions within our own operations and to the extent possible for our contractors. The new Flexible Work Arrangement Policy Directive makes working from home for our staff 2 to 3 days a week the "norm" instead of the exception. For days when employees are working in CDOT offices, internal employee TDM-Transportation Demand Management efforts including the "Reboot Your Commute" program encourage biking, walking, carpool, vanpool, and transit for the return to work this summer.

II.D. Improving modeling and planning conventions within the department:

The Department has embarked on, and continues to advance, significant improvements in planning and modeling conventions. These continue to evolve and will be complemented by further improvements and steps to codify best practices.

Planning elements including NEPA and 1601: The Department's new approach to NEPA seeks to go above and beyond the minimum federal requirements, which CDOT believes will help establish best practices and future precedent for large highway projects. We are modeling additional metrics such as fine particulate matter (PM2.5) and induced demand for major projects currently underway, and such analysis will become a consistent expectation in project reviews moving forward. CDOT is also exploring advanced mitigation to proactively identify ways to offset negative impacts of projects, as well as include elements that yield positive benefit for the community during construction and beyond. In the spirit of these efforts, CDOT is also improving internal policies, such as requiring for the first time that communities follow the Department's process for approving new interchanges, which includes consideration and incorporation of transportation demand management strategies.

Improving Travel Modeling: For the last several years, CDOT has worked to develop Colorado's first-ever statewide travel model, which has included building out a travel forecasting team. A key point in this process was the choice between available travel model structures and software, selecting the newer "activity-based model" (ABM) form over the older and more traditional "trip-based model" form; CDOT adapted the ABM used at DRCOG, expanding it to statewide scale. While the ABM form is becoming common in large metropolitan areas across the US, very few statewide models have yet been built using this structure, which is important for evaluating factors like induced demand and the benefits of active transportation. The advantage of the ABM form is that it includes a much more detailed depiction of both land use

and person/household characteristics than does the trip-based form, permitting ABMs to be sensitive to numerous factors that are known to have significant effects on travel choice. This will become a powerful tool for CDOT's future analysis of its efforts to reduce GHG emissions.

In particular, CDOT's ABM provides capabilities that are crucial to the GHG analysis now on-going, including:

- Induced demand analysis: CDOT's model permits a thorough evaluation of the effects of roadway capacity expansion on the amount motorists choose to drive, and thus the subsequent impact on GHG emissions.
- Explicit inclusion of walking and biking in the set of modes available for any given trip (older trip-based models as a rule do not include these modes).
- Direct estimates of whether employees work from home or at another location.
- Depiction of household and employment locations at a high level of detail, greatly enhancing CDOT's ability to evaluate the effect on travel demand of various development patterns.
- Depiction of Colorado residents at a level of detail similar to that provided by the US Census, permitting sensitivity to demographic characteristics that affect people's travel choices (e.g., student and worker status, age, income, etc.)

II.E. Bringing more voices into the transportation conversation:

Transportation planning should be a conversation with our neighbors about the real needs that affect their daily lives. To that end, one of CDOT's first efforts during the Polis Administration was to undertake an unprecedented outreach process that took Department leadership and staff to all 64 Colorado counties, to discuss a wide range of transportation needs and priorities that should guide the Department's capital program.

Out of this process, the Department developed a ten year plan responsive to community needs -- focused on key priorities like fixing roads and bridges across the state ("fix it first"), addressing strategic choke points on the interstate system like Floyd Hill and I-270, and placing a new focus on the safety and vitality of our main streets which carry multiple modes of transportation. The plan also focuses on better integrating transit into critical corridors like I-70 and I-25 to recognize that we can't build our way out of congestion and must take a multifaceted approach to accommodate Colorado's ongoing growth. This includes increasing CDOT's Bustang transit service and investing in new mobility hubs that increase access to transit and carpooling.

As we move to project implementation, and leveraging the relationships built out of the ten year plan process, CDOT is endeavoring to use new approaches to improve our communication with (and involvement of) communities around project planning and execution. This means coordinating early while projects are being designed, and remaining

available for community input and dialogue as we manage tactical details such as construction schedules.

CDOT is piloting improvements to our community outreach processes in designing the I-270 process. Out of the necessity created by COVID-19, CDOT adapted public meetings to a virtual format and found that pre-recorded "virtual open houses" — available in both English and Spanish — significantly expanded participation beyond traditional public meetings. By incorporating holistic virtual opportunities in our public outreach portfolio, community members who may not have the ability to join live events have an opportunity to thoroughly engage with the project team. CDOT established a standing advisory group for the I-270 project that includes key local government partners as well as neighboring jurisdictions, community leaders, business owners, environmental justice advocates, and others. The goal of this "steering committee" is to preview ongoing analysis, identify project concerns, and establish a communication network with local communities. Early mitigation implementation is running parallel to these outreach efforts — a dozen air quality monitors will be installed along the I-270 corridor before the project even begins construction.

As these types of improvements are refined, they must become part of CDOT's standard operating procedure, to ensure predictable and streamlined processes as well as consistent best practice. A key requirement in SB260 will help make this happen. The legislation requires the establishment of a new Environmental Justice and Equity Office within CDOT in order to "work directly with disproportionately impacted communities in the project planning, environmental study and project delivery phases of transportation capacity projects." The legislation also establishes important connections between use of dollars in the multimodal and mitigation options fund, for both CDOT and metropolitan planning organizations in Clean Air Act nonattainment areas, and the GHG Standards discussed in this paper. This means that in order to have full flexibility around these funds, both CDOT and relevant MPOs will need to measure their plans against GHG standards quickly after they are established. If plans do not meet those standards, use of funds after October 2022 will be limited to uses that help achieve compliance.

III. Pollution Reduction Planning Approach

The purpose of establishing greenhouse gas pollution standards for transportation projects is to create a standardized framework for assessing the expected impacts that a project or plan will have on consumer driving behavior. The goal is for project level decisions and planning level decisions to consider these impacts, among other considerations, and ensure that as state and MPO plans are updated and developed, projects within them fit within a fixed target when measuring cumulative emissions impacts.

From an air pollutant standpoint, connecting transportation planning to emissions is not a new policy area. In fact, transportation conformity provisions within the Clean Air Act

approach ozone much the same way. Transportation conformity ensures that federally funded or approved highway and transit activities within a nonattainment area are consistent with ("conform to") a state's plan to reduce emissions. Because ozone is a "regional" pollutant (formed in the atmosphere from the interaction of nitrogen oxide and volatile organic compounds), it requires a plan-level analysis in order to determine the cumulative impact of a set of projects. Colorado's front range has been in ozone nonattainment for many years, which has required the North Front Range and DRCOG MPOs to demonstrate conformity with each plan adoption and amendment.

At a high level, the pollution reduction planning rule to be proposed to the TC for adoption would establish limits on the amount of expected (or modeled) GHG emissions that will result from the vehicles traveling across the transportation system as a result of a set of projects in a transportation plan. It also sets forth the details on how CDOT and the MPOs will ensure compliance.

III.A. Major policy issues and outstanding questions:

Practical Implementation: In order for this policy to work, it will be important to have a clear process for implementation that includes guidance on how different types of projects "score" in terms of GHG footprint, as well as a clear process for how those calculations are established and then updated. As such, the draft rule will outline a process for evaluating different categories of projects that can serve as mitigations, primarily by virtue of showing a reduction in vehicle miles traveled. For example, mitigations could include a bus rapid transit route, a sidewalk, or a connection to multi-use resources (e.g. neighborhood retail) that could decrease driving in that neighborhood.

The mitigation list may also include features to facilitate clean vehicle turnover above and beyond what could be assumed to occur without the rule given other incentives for electrification. For example, a highway project along a key freight corridor might include targeted investments in heavy-duty charging to accelerate turnover of the rolling stock within that corridor, specifically. While it will be important to avoid "double counting" with other policies, this readiness for zero emission vehicles, especially in the medium and heavy duty truck space, will be a critical need in future highway planning that this rule can and should accelerate.

The draft rule will also scope an evaluation process for how modeling for mitigations should be conducted and approved -- including transparency measures -- to ensure a public conversation about that process as well as a resulting policy that can be nimble and iterative. This evaluation rubric could include metrics for assessing impact "hotspots" within residential neighborhoods, including potentially providing a higher level of credit to interventions based on community impact and health equity.

Primary Policy Issues: As the Administration prepares to initiate draft rules, there are a number of key areas that merit increased public dialogue and scrutiny leading up to finalization. These include:

The Role of the Transportation Commission: As noted elsewhere in this paper, the approach contemplated in this paper responds to two recent pieces of legislation (HB19-1261 and SB21-260). Specifically, the passage of SB 260 establishes additional requirements on the TC in this space, which is reflected in the approach that is being developed.

In HB19-1261, now codified in part at §§25-7-102(2) and 105(1)(e), C.R.S., the General Assembly declared that "climate change adversely affects Colorado's economy, air quality and public health, ecosystems, natural resources, and quality of life[,]" and that "many of these impacts disproportionately affect" certain disadvantaged communities." §25-7-102(2)(d), C.R.S. The Colorado General Assembly's updated GHG reduction goals are outlined in a footnote on Page 1. Section 25-7-105(1)(e), C.R.S., sets forth the framework for developing GHG abatement rules consistent with the statewide GHG pollution reduction goals in §25-7-102(2)(g), C.R.S. It is expected that the TC rule will, at the outset, set an ambitious target for the pollution reduction planning, under the assumption that this policy will account for a meaningful portion of sector-wide progress in total GHG reductions., but nonetheless be one of many policies contributing towards that goal. Colorado's transportation planning process is a cooperative process designed to coordinate regional transportation planning and is guided by statewide transportation policies set by CDOT and the TC and by the TC's Rules Governing Statewide Transportation Planning Process and Transportation Planning Regions, 2 CCR 601-22 ("Statewide Planning Rules"). The TC's authority to promulgate and adopt the Statewide Planning Rules can be found in §43-1-1103(5), C.R.S., which requires the TC to promulgate rules and regulations governing state transportation planning. The TC also has broad rulemaking authority pursuant to §43-1-106(8)(k), which grants the TC the power to make all necessary and reasonable orders, rules and regulations in order to carry out its authority and duties.

How the pollution reduction planning levels will be determined: Unlike most air quality regulations, this rule cannot rely on known technological improvements (e.g. a scrubber or industrial process change) to determine reduction levels. Instead, we must estimate (i.e. model) the long-term change in travel decisions resulting from a series of potential infrastructure changes and investment decisions. A further challenge is selecting those decisions under the control of CDOT and the MPOs in order to align the reduction levels with the actions of those entities subject to the regulation.

CDOT selected a number of scenarios to model and determine their impact on VMT and GHGs.

1. Travel Choices

- Additional sidewalk and bike lanes, increased work from home

2. Travel Choices + Transit
    - Increase in transit service and decrease in fares
3. Travel Choices + Transit + Land Use
    - Change in development patterns
4. Acceleration of Vehicle Electrification

As noted above, it is important to select scenarios that are under the control of MPOs and CDOT. MPOs and CDOT can play a role in incentivizing land use decisions that will be more efficient to accommodate integrated transportation flows, reducing overall costs and increasing environmental and economic benefits and, perhaps more importantly, partner with local governments interested in transit-oriented development or infill. For example, as cities pursue downtown revitalization and housing, they also seek to add pedestrian features and calm traffic on state highways (which in many cases function as main streets). The traditional role of state highways are as corridors for freight and through-traffic; however more pedestrian-oriented state highways can attract infill housing development that could ultimately reduce greenfield development and the resulting congestion. For this reason, the impact of changes in land use is considered in these scenarios, and in the GHG reduction ranges in the proposed rule.

The Role of Personal Choice: The Department recognizes that even the best model is imperfect, especially when modeling human behavior. Despite the efforts of CDOT, MPOs and transit agencies to build projects in ways that incorporate new technologies or offer additional travel and mode choice, individual Coloradans are ultimately in charge of how they get from point A to point B, and they may not behave precisely as the models predict. There is a rich and growing body of research on how humans interact with the transportation system including how travel decisions are made and the factors that influence the uptake of emerging and potential future mobility options. In general, people make travel choices based on travel time, cost and convenience, but different people assign different weights to these factors and can also bring in additional preferences that reflect unique lifestyle choices, personal values and goals. Once travel preferences are established, they become ingrained habits that can be difficult to change. However, changes in life circumstances such as changing jobs, moving to a new home, having children, changes in health status or improvements to the transportation choices offered can trigger individuals to reassess travel habits. By expanding travel options, and designing projects in a way that incentivizes more efficient behavior including through a connection to sustainable land use, and by providing a wider variety of safe and convenient travel options in addition to driving and individual car, planners provide the opportunity for individuals to make different choices, but whether travelers actually shift into new modes of travel depends on which factors appeal to each unique traveler. This policy is focused on expanding options available to consumers.

Over time, as the state of the modeling practice improves in evaluating the many measures

under consideration to reduce GHG emissions, CDOT's modeling tools also will also improve in their ability to evaluate the effects of such measures. This is an important reason to include requirements in the rule to re-evaluate reduction levels and adjust as necessary.

Magnitude of the GHG Reductions: This memo, quite intentionally does not provide a target savings pollution reduction, but CDOT plans to present the transportation commission with a range of feasible levels for consideration as alternatives in a proposed rule. This is intended to steer this week's dialogue towards the mechanics of how the policy, implementation and enforcement could work. As the pollution reduction planning standards should ultimately represent a summation of the realm of the possible, we believe that it is important to steer dialogue first to the parameters of the policy and then to determine the maximum feasible GHG and smog reduction levels based on how the policy will operate in the real world. The development of these targets will involve dialog among stakeholders, to ensure that the statewide emission reductions reflect a realistic upper range of feasible emissions reductions that CDOT and its partner MPOs can achieve. No one solution alone can address these issues - be it electrification or multimodal expansion - but a market basket of best practices and compliance options that can be suited to the project at hand can do so successfully. By working towards realistic but ambitious reduction totals, we can determine the realm of the possible and address the challenge before us.

VMT as a Strategy: It is important to note that although VMT reduction can help to reduce GHG in the short-term, as more vehicles convert to electric technology VMT is less of a factor in the creation of GHG emissions in the longer term. However, several stakeholders have suggested basing the emissions budget around a 10% reduction in VMT, a percentage discussed in the GHG Roadmap. This metric was included in a scenario to achieve a future budget year as part of the Roadmap but was never intended to be a required strategy for CDOT or the MPOs to achieve the GHG reductions outlined in the budget/sub budget. In fact, the proposed rule will show the combined impact of electric vehicles and reduced travel so that stakeholders can understand the varying influence these measures have over time.

Enforcement: Understanding how CDOT and MPOs comply with the pollution reduction planning standards will be complex and will require coordination over many years to come in order to ensure the modeling is reflecting the changes that are occurring in Colorado with respect to population, land use, and transportation electrification. Also, considering how CDOT and the MPOs factor in the cost of pollution reduction planning measures will be an important consideration. With significant public input, CDOT intends to recommend that the Transportation Commission (TC) develop an enforcement mechanism, likely related to the conditions and flexibility of federal funds that the TC approves for use by CDOT as well as those typically sub-allocated to MPO areas. There is significant precedent for tying the flexibility of federal aid highway funds to whether certain targets (such as road and bridge condition) are met.

IV. Conclusion

It is important to stress again that the Pollution Reduction Planning Process alone is not intended to achieve all of the emissions reductions identified in the Greenhouse Gas Roadmap for the transportation sector, and the Administration will concurrently advance policy dialogue in other areas, such as clean trucking, future car standards beyond 2025, additional incentives for compact land use and electric vehicle use, and major multimodal investments like Front Range rail and initial intercity mobility service for the Front Range, simultaneously with development of this policy. These efforts will require collaboration across multiple governing bodies with their respective expertise and authorities in order to achieve total Roadmap savings for the transportation sector.

It is also important to note that this memo does not address the Air Quality Control Commission's role in measuring and confirming progress in the transportation sector, but is focused on briefing the TC ahead of their initiation of rulemaking specifically applicable to CDOT and sub recipients of transportation dollars.

Each of these and additional policy tools will require rigorous review in assessing the impacts and efficacy observed over the years to come. Invariably, questions will require ongoing dialogue following this proposition and the creation of parallel CDOT policies, and the Department readily makes itself available for such conversations. For example, while CDOT and MPOs typically plan on multiple year cycle without appending previous plans, it will be important to establish interim reviews of plans and their anticipated impacts to help inform improvements and mitigations in real time, including CDOT's Ten Year Plan as well as DRCOG and other MPOs.