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Project Coordinator,

The following are joint comments submitted by the Save Our Springs Alliance, San Marcos River Foundation, and Rethink 35 - San Marcos Chapter concerning the I-35 Austin to San Antonio Link Study from SH 45 Southeast to CR 382 (Cibolo Valley Drive). This letter provides support for unlisted alternatives, expresses concerns about highway expansion, and provides citations for research and data that points to reasonably foreseeable environmental harms that will result throughout the described project area and beyond.

I. Support for Unlisted Alternatives and More Emphasis on Mobility.

The study, including the purpose/need statement and the alternatives selected for consideration, presumes that increased capacity to the roadway is necessary. This assumption sets the foundation for subsequent analyses and decision-making that leads to the expansion of the number of lanes and vehicle miles within the corridor. While it is not unrealistic for this corridor to continue to grow in population, whether the corridor increases or decreases in vehicle miles traveled (VMT) is a direct consequence of design choice. Mobility and transportation needs will undeniably increase within this corridor, but that does not automatically translate to an increase in demand for highway lanes.

Expanding the highway is a design choice; not one drive by need. Highway expansion has a direct consequence of induced demand, ultimately increasing VMT, further exacerbating traffic congestion and the environmental impacts along the corridor. Investing in highway expansion is not the optimal solution. Alternatives, such as public transportation improvements, active transportation options and integration (like bike lanes and trail infrastructure), and smarter land-use planning could reduce or significantly mitigate the increase of VMT throughout the corridor, regardless of population growth. The project scope should be redefined to reduce or minimize VMT and expand mobility options throughout the corridor.

Rather than fixating solely on capacity expansion, TxDOT should broaden its perspective to consider how we can minimize vehicular miles traveled and how alternatives to highway expansion could enhance mobility choices for commuters. This shift in focus would empower its transportation engineers and planning team in the Link Study to work with the community on more innovative solutions beyond traditional highway widening.

Increasing mobility options and commuter choices would provide a better approach–one that balances growth, sustainability and mobility–to reshape and make more resilient this essential economic corridor for the State of Texas.

A. ***Need for Expanded Alternatives.*** The following are the listed alternatives in the TxDOT Link Study:

1. *Transportation System Management (TSM)*
2. *Transportation Demand Management (TDM)*
3. *Future Transportation Corridor (1x1)*
4. *Future Transportation Corridor (2x2)*
5. *No-Build Alternative*

These alternatives follow the standard pattern for TxDOT environmental studies, but we are encouraged by the reference to the possibility of the consideration of rail within the future transportation corridor lane descriptions. Based upon past experience, it is likely that the alternatives will be quickly narrowed to different degrees of highway expansion. TSM and TDM, while incredibly valuable, are often categorically dismissed quickly and never fully developed as an alternative. These strategies are rolled into design elements of expansion options. Although the no-build alternative will be carried through as a baseline, it is often a misleading comparison, forecasting traffic demand upon roadways without sufficient capacity to accommodate those forecasts. The no-build scenario should accurately reflect existing conditions and constraints and include discussion of the logical outflow of changes to commuter behavior. As residents within the corridor and leaders within our communities, we ask that TxDOT consider expanding upon these alternatives.

The corridor between Austin and San Antonio is defined by commuters without options. The communities within Hays and Comal counties are predominantly commuters. Based on information from the City of San Marcos, upwards of 3 out of 4 of the city's adult residents are commuters.

Adding vehicular travel lanes does not expand commuter options. Given that Austin and San Antonio are the primary destinations for commuters in the area and the relatively short distance between these two economic hubs, linking Austin and San Antonio through a commuter rail is a common sense solution. Not only would this expand upon economic opportunities, it would significantly relieve traffic congestion while providing commuters with non-vehicular options.

To assist TxDOT with the development of commuter-friendly alternatives, we submit the following two concepts for inclusion in the consideration within the environmental study.

A.1 **Commuter Rail**. For decades, the idea of a more frequent and more reliable passenger rail system has been discussed and planning efforts have been funded through interagency cooperation. In 2003, the communities along this corridor

started the Lone Star Rail District (renamed). Under the general proposal, the Lone Star Rail District would have developed and operated a passenger rail service with stations extending from San Antonio to Austin (actually, all the way to Georgetown), with stops at the major economic centers throughout the district (i.e., Kyle, Buda, San Marcos, New Bruanfels, Schertz, Universal City). The commuter rail would have used the existing right-of-way owned by the Union Pacific Railroad (UPRR). Although the Lone Star District has disbanded, the concept was developed, and new energy around the idea exists under the umbrella of Restart Lone Star Rail.

Increased Commuter Reliability. With the ability to increase speeds up to 110 mph with track improvements, the Lone Star Rail concept could provide commuters within the link study area with a consistent and reliable transportation alternative. In lieu of spending 45-60 minutes driving to Austin or San Antonio in single-occupancy vehicles, these commuters could better spend their time sitting on a train, getting their days started, in a safe, time-reliable commuter train. With standardized schedules, commuters are freed from the stress of unpredictable traffic delays caused by frequent accidents and construction on I-35.

Reduced Traffic. Investing in a frequent, consistent commuter rail is the most obvious and effective way to reduce traffic on I-35 (as well as the frontage roads and arterials throughout the corridor. Significant research and lived experiences in communities across the nation (and the world) demonstrates the value of commuter rail, with some data indicating it can even reduce the number of vehicles on I-35 by more than 20%. Other Texas commutes have proven success in ridership levels that remove the need for entire lanes of traffic, such as the Red Line in the Dallas Area Rapid Transportation system.

Beneficial Environmental Impacts. From an environmental perspective, the commuter rail alternative is far superior. Trains produce fewer car emissions per passenger compared to vehicles and buses. This results in a reduction of air toxins, greenhouse gas emissions, and other forms of air pollution. And, because trains require less right-of-way than highways and the Lone Star Rail concept largely follows existing right of way, there would be limited impacts to rivers, creeks, and water bodies throughout the corridor, with the enhanced benefit of less highway runoff containing harmful pollutants and sediments.

Commuter time is linked to living expenses and commuter choices; longer commuter times influence people to change commuting patterns. Often, families are willing to live in smaller or more compact housing options in lieu of spending hours a day on commuting. By placing stops within the major economic centers of each city throughout the corridor, TxDOT could have a transformative impact on the growth trends for these areas, supporting denser land uses and providing opportunities for area residents to live a car-free or even car-light lifestyle. This reduces VMTs (along with car emissions and air toxins). And, because commuter rails work well with active forms of transportation, such as bicycling, public health would also benefit from giving commuters options to start and complete their commutes on foot or bike.

Accessibility. Presently, there are very limited options for commuters who do not have access to, cannot afford, or have difficulty driving single-occupancy vehicles. This includes people who have disabilities, as well as people who have economic or social hardships that restrict them from driving. A commuter rail service would open more convenient and more affordable opportunities for them to commute between the corridor cities.

Affordable. While capital costs would need further assessment, the benefit of the Lone Star Rail is that it can be built and implemented in phases, with cost participation from local governments. Estimates for the Austin portion of the line is less than $500 million, and the entire line (Georgetown to San Antonio) would be less than $1.5 billion. Considering the reach of the line and its opportunity to relieve capacity concerns from I-35, these upfront costs are relatively low.

A.2. **Modify Existing Lanes with HOV.** The signatories of this letter encourage TxDOT to consider as an official alternative the restriping of existing pavement to replace an existing lane (on each side of the highway) with a high-occupancy-vehicle (HOV) lane. By dedicating a lane to vehicles with multiple occupants (such as carpools, vanpools, and buses), the alternative design encourages ridesharing and reduces single-occupancy vehicle congestion. And, by partnering with transit

providers in the region, such as CARTS, a commuter bus option would become instantaneously feasible, without significant construction costs and delays.

Because HOV lanes help influence commuter behavior, striping an HOV lane would allow commuters the opportunity to consider changes to their patterns, including carpooling. HOV lanes incentivize carpooling by providing a faster, more reliable commute for those who share rides.

These HOV lanes would help alleviate traffic bottlenecks during peak hours and improve commuter time reliability. Commuters in shared vehicles can bypass the gridlock, leading to smoother flow for everyone. With more commuters participating in carpooling and transit, there will be fewer cars on the road, leading to reduced congestion, reduced emissions, and a positive environmental footprint.

Due to the low capital expense associated with such a modification, we would encourage TxDOT to, at a minimum, consider implementing a **pilot program** for this corridor to assess the impact of HOV lanes on travel times, emissions, and overall mobility improvement, without significant costs and construction delays.

II. Concerns with Highway Expansion

A. ***Induced Demand.*** Expanding I-35 is likely to lead to induced demand. Induced demand occurs when highways are expanded to accommodate additional traffic capacity. Highway expansion chases the notion that there is a level of available roadway surface to satisfy the peak demand of traffic, ignoring the correlated effects on land use and consumer choices that quickly refill the traffic lanes with congestion. Induced demand is not a new concept, and despite the research and lived experiences that should dispel the notion that highway expansion will ever solve congestion, it continues to be categorically dismissed in transportation studies. Below are articles, studies, and other resources related to induced demand:

1. RMI SHIFT Calculator
2. RMI_SHIFT (STATE HIGHWAY INDUCED FREQUENCE OF TRAVEL) CALCULATOR_About the methodology
3. American Economic Review_2011_The Fundamental Law of Road Congestion: Evidence from US Cities
4. California EPA Air Resources Board_2014_Policy Brief_Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions
5. UC_Davis_2015_Policy_Brief_Increasing_Highway_Capacity_Unlikely_to_Relieve_Traffic Congestion

6. Journal of Transport Economics and Policy 2002 Induced Travel Demand and Induced Road Investment: A Simultaneous Equation Analysis

B. ***Transportation Safety: Accidents.*** Vehicular highway travel is inherently dangerous, especially at higher speeds. Speed is a contributing factor to 31.3% of accidents in Texas. It is the highest contributing factor in fatal accidents in Texas. Reducing congestion has a counter-intuitive effect; it can increase traffic fatalities. Because drivers can drive faster when roads are less congested, unnecessarily wide highways can influence risky driver behavior and contribute to conditions that decrease transportation safety. Thus, if the goal is to reduce fatalities, increasing the number of lanes does not automatically result in safer conditions.

It is also interesting to note that the materials provided for the Link Study state that approximately 1 in 5 (20%) of accidents along the I-35 corridor occur within construction work zones. Accidents are the primary cause of long-periods of delay and congestion along the I-35 corridor. A single accident can cause hours of delay (on both sides of the highway) regardless of the highway width.

The proposed alternatives include highway expansion, which will require significant construction. It is feasible that a project of the size noticed as part of the Link Study could disrupt commuters' lives in Hays and Comal Counties for a decade. Prolonging construction within this area will likely lead to more accidents, more delays, and, combined with induced demand, consume any marginal congestion relief associated with the listed alternatives.

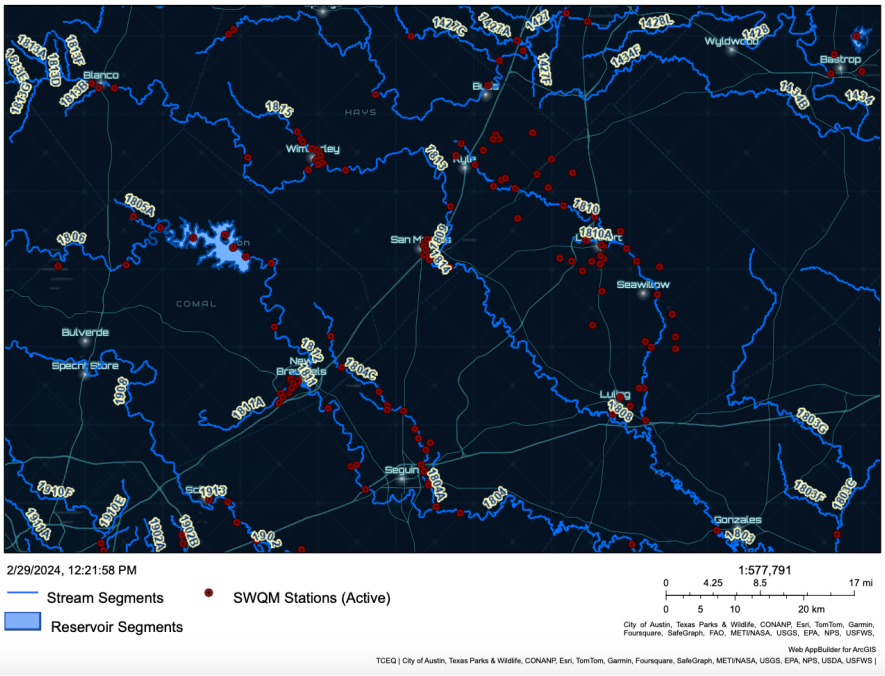
Much of these construction-time accidents can be avoided by investing in parallel rail expansion and investing in capacity increases that do not disrupt the flow of traffic on the main lanes. Similarly, by providing commuters with a commuter rail option, TxDOT can provide commuters with an inherently safer travel method. Traveling by intercity passenger rail is approximately 20 times safer than driving.

1. Texas' Deadliest Roads and Fatal Accident Statistics, Doug Milnes, CFA, Money Geek, Updated 10/17/2023
2. Speed Management is Key to Road Safety, by Guan Xu, Abdul Zineddin, Randolph Atkins, and Sarah Abel, US Department of Transportation, Federal Highway Administration, Public Roads - Winter 2022, Vol. 85, No.4, FHWA-HRT-22-002

C. ***Water Quality.*** The Central Texas / Hill Country region is one of the most beautiful landscapes in the country, with its water resources providing some of the cleanest water sources in urban environments. The expansion of I-35 would cross and threaten these creeks and rivers, along with the watersheds and tributaries and the

native and species and habitat that rely upon them. These water bodies include major water bodies such as Onion Creek, Blanco River, Plum Creek, San Marcos River, Alligator Creek, Guadalupe River, Comal River, and Cibolo Creek.

Surface Water Quality in Texas Custom Map



These rivers and creeks are hydrologically connected to aquifers, including the Edwards and Trinity aquifers (and their buffer zones) which extend throughout the corridor area. Our communities rely upon this groundwater for drinking water, so pollution and erosion that threaten the water quality of these water bodies (and their future availability) are of paramount concern to us.

We are also concerned about the unnecessary expansion of roads and bridges that place pavement on top of or near these water bodies and increase impervious cover within their watersheds. Impervious cover affects surface water flow, which can lead to increases in erosion and sedimentation. It also collects highway pollutants, such as heavy metals, oils, toxins, hydrocarbons, pesticides, and other substances that contain excess nutrients, that are washed away and carried into surface water bodies, without proper water quality treatment. Lead dust contamination is also a concern to the soils that have settled around highways and would be reintroduced into the air and water runoff as a result of construction activities.

Water bodies, such as the San Marcos River, are habitat to several threatened and endangered species, including the Texas blind salamander, fountain darter, and Texas wild rice. Increased sedimentation and pollutants making its way into these creeks,

rivers, and their tributaries will harm their ecological health by affecting increasing nutrients, resulting in algae growth and oxygen depletion, as well as damaging riparian habitats and potentially harming aquatic species directly by clogging gills, smothering spawning areas, and affecting food sources. Bridges and crossings also block sunlight from aquatic habitat, prevent plant growth and potentially increase disturbance and damage to riparian zones with new excavation activity.

The alternatives that the community are proposing through this letter avoids significant increases in impervious cover and other creek and river damage, by working with what we already have on the ground now.

D. ***Air Quality.*** Proximity to major roadways, such as I-35, increases the accumulation of and long-term exposure to air toxins that contribute to environmental health risks, especially among vulnerable populations with chronic health problems, such as respiratory and heart diseases. As shown in the data, the human population within this corridor is anticipated to increase. Expanding the highway–both in terms of increasing its capacity and bringing travel lanes closer to residences, hospitals, daycares, and businesses-–will increase the number of people who are exposed to these air toxins and total overall environmental health risks. Car emissions are a major source of higher concentrations of air toxins (as listed in the NAAQs), including (but not limited to) PM, CO, and NOx. Our region is currently out of compliance with PM 2.5. The environmental study should assess changes in environmental health risks resulting from concentrations of air toxins and their effects on the neighborhoods, schools, hospitals, and businesses along this stretch of highway.

E. Species Impacts and Habitat Fragmentation. The construction and expansion of I-35 within this corridor would have a direct impact on several threatened and endangered species and their associated habitat. The free-flowing rivers and springs, which are hydrologically connected to the Edwards Aquifer, are critical habitat for the following species: (i) the San Marcos Fountain Darter (endemic to the upper 3.8 miles of the San Marcos River); (ii) the Texas Blind Salamander (lives within underwater caves in the San Marcos region); (iii) San Marcos Salamander; (iv) Texas Wild Rice (unique to the San Marcos River); (v) Comal Springs Dryopid Beetle (resides in the Edwards Aquifer and Spring Lake); and the Comal Springs Riffle Beetle. Many of these species, including the San Marcos Fountain Darter, Texas Blind Salamander, and the San Marcos Salamander are extremely sensitive to changes in water quality and water quantity (flows) and to sedimentation and pollution associated with highway construction and runoff.

In addition to water quality concerns (addressed above), the construction and expansion of I-35 could result in environmental disturbances and habitat fragmentation that would disrupt ecosystems and directly and indirectly take threatened and endangered species. TxDOT should immediately engage in formal consultation with US Fish & Wildlife Services, as well as the Meadows Center and the many local jurisdictions and environmental organizations that actively engage in species preservation within this corridor.

F. Parks Resources. There are several parks and historic resources that would be impacted by highway expansion along this stretch of the I-35 corridor, including parks and trails along the rivers and creeks that help provide connectivity for residents, visitors, and wildlife. For example, the San Marcos River has over 130 acres of associated parkland, and the City of San Marcos has invested significant resources in establishing trail connectivity underneath I-35, as well as keeping the river free of debris from the highway. Further disturbance to this area would be a serious concern for the local community and potentially present significant ongoing costs for environmental preservation and reinvestments in trail connectivity.

G. Additional Resources and Studies for Inclusion as part of the ongoing record. The following resources are submitted for consideration by the environmental review team, and it is expressly requested that these readily available studies, articles, and other resources are made part of the formal record for the project.

Tailpipe Emissions vs. Tire Friction Pollution/ Brake Dust Pollution/ Electric Vehicle Pollution

1. Int J Environ Res Public Health 2017 Wear and Tear of Tyres: A Stealthy Source of Microplastics in the Environment
2. Report EUR 2014 Non-exhaust traffic related emissions. Brake and tyre wear PM
3. Atmospheric Environment 2011 Investigation on the potential generation of ultrafine particles from the tire–road interface
4. Journal of Environmental Protection 2013 Dust Resulting from Tire Wear and the Risk of Health Hazards
5. Environmental Science & Technology 2004 Tire-Wear Particles as a Source of Zinc to the Environment
6. Environmental Science and Pollution Research 2015 Brake wear particle emissions: a review
7. Science of the Total Environment 2008 Sources and properties of non-exhaust particulate matter from road traffic: A review
8. Science of the Total Environment 2020 Tyre and road wear particles (TRWP) - A review of generation, properties, emissions, human health risk, ecotoxicity, and fate in the environment
9. Science of the Total Environment 2022 Tire wear particle emissions: Measurement data where are you?

10. Science of the Total Environment 2022 Effect of treadwear grade on the generation of tire PM emissions in laboratory and real-world driving conditions
11. Emission Control Science and Technology 2021 Development of Tire-Wear Particle Emission Measurements for Passenger Vehicles
12. Wear 2018 Investigation of ultra fine particulate matter emission of rubber tires
13. Bloomberg 2022 New Tech Aims to Capture Electric Vehicle Tire Emissions
14. Arizona Department of Transportation 2006 Tire Wear Emissions for Asphalt Rubber and Portland Cement Concrete Pavement Surfaces
15. The Conversation 2020 Air pollution from brake dust may be as harmful as diesel exhaust on immune cells – new study
16. UK Research and Innovation 2020 Brake dust air pollution may have same harmful effects on immune cells as diesel exhaust
17. U.S. Department of Energy Alternative Fuels Data Center Emissions from Electric Vehicles
18. U.S. Department of Energy Argonne Laboratory 2009 Well-to-Wheels Energy Use and Greenhouse Gas Emissions Analysis of Plug-in Hybrid Electric Vehicles
19. National Renewable Energy Laboratory 2016 Emissions Associated with Electric Vehicle Charging: Impact of Electricity Generation Mix, Charging Infrastructure Availability, and Vehicle Type
20. US News 2020 Brake Dust Another Driver of Air Pollution
21. The New York Times 2021 How Green Are Electric Vehicles?
22. Scientific American 2016 Electric Cars Are Not Necessarily Clean
23. The Guardian 2016 Why electric cars are only as clean as their power supply
24. Biofriendly Planet 2022 Electric Vehicles and Their Impact on the Environment
25. California Air Resources Board 2022 California moves to accelerate to 100% new zero-emission vehicle sales by 2035
26. CNN 2022 Car tires are disastrous for the environment. This startup wants to be a driving force in fixing the problem.

VOCs/ PM2.5/ Greenhouse Gases

1. World Health Organization 2019 Exposure to benzene: a major public health concern
2. American Lung Association 2022 Volatile Organic Compounds
3. National Cancer Institute 2022 Benzene
4. Environmental Research 2020 Characteristics of volatile organic compounds from vehicle emissions through on-road test in Wuhan, China.
5. Aerosol and Air Quality Research 2018 Emission Characteristics of VOCs from On-Road Vehicles in an Urban Tunnel in Eastern China and Predictions for 2017–2026
6. Atmospheric Environment 2017 Characteristics of volatile organic compounds (VOCs) from the evaporative emissions of modern passenger cars
7. Atmospheric Environment 2012 Volatile organic compounds from the exhaust of light-duty diesel vehicles
8. Analytical Sciences 2012 Measurement of volatile organic compounds in vehicle exhaust using single-photon ionization time-of-flight mass spectrometry
9. PubMed 2001 Exposure to volatile organic compounds for individuals with occupations associated with potential exposure to motor vehicle exhaust and/or gasoline vapor emissions
10. Environmental Research 1999 Assessment of benzene and toluene emissions from automobile exhaust in Bangkok

11. Atmospheric Environment 1967 Benzene, toluene and xylene concentrations in car exhausts and in city air
12. Environmental Science and Technology 1992 On-line measurement of benzene and toluene in dilute vehicle exhaust by mass spectrometry
13. Iowa State University 2015 Quantification of benzene, toluene, ethylbenzene and o-xylene in internal combustion engine exhaust with time-weighted average solid phase microextraction and gas chromatography mass spectrometry
14. Journal of Exposure Science & Environmental Epidemiology 2003 Measurement of volatile organic compounds inside automobiles
15. Chronic Diseases and Translational Medicine 2018 Fine particulate matter (PM2.5): The culprit for chronic lung diseases in China.
16. Journal of Thoracic Disease 2016 The impact of PM2.5 on the human respiratory system
17. US EPA 2022 Health and Environmental Effects of Particulate Matter (PM)
18. Harvard School of Public Health 2011 Greenhouse gases pose threat to public health
19. CDC 2022 Climate Effects on Health.
20. NAQTS, Emissions Analytics, Lancaster University 2018 Vehicle Interior Air Quality: Volatile Organic Compounds

Congestion vs. Idling Emissions (Traffic Emissions)

1. Transportation Research Record Comparison of Vehicular Emissions in Free-Flow and Congestion Using MOBILE4 and Highway Performance Monitoring System
2. Atmospheric Environment 2011 Vehicle emissions in congestion: Comparison of work zone, rush hour and free-flow conditions
3. Institute for Transport and Economics 2007 How Much does Traffic Congestion Increase Fuel Consumption and Emissions? Applying a Fuel Consumption Model to the NGSIM Trajectory Data
4. Science of The Total Environment 2013 Air pollution and health risks due to vehicle traffic
5. USA Today 2011 Study blames 2,200 deaths on traffic emissions

III. Conclusion.

These joint comments submitted by the Save Our Springs Alliance, Rethink35 - San Marcos, and the San Marcos River Foundation expressly request that the Texas Department of Transportation consider an expanded purpose and need statement that focuses on mobility options, not just increased highway capacity. We support consideration of using existing pavement for HOV lanes (not expansion) and the development of a commuter rail system that would link Austin, San Antonio, and the critical communities in between (e.g., Kyle, Buda, San Marcos, New Braunfels, Schertz, Universal City). The residents of the communities deserve consideration of mobility options that don't rely on single-occupancy vehicles and would help protect our environmental resources. Alternatives to highway expansion would be better for air quality, water quality, and protect our parks and rivers from further environmental degradation. Please proceed with this Link Study in a collaborative way that adequately considers and studies additional alternatives than those described in the available materials.

Thank you,

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