



CITY OF LONGMONT | Engineering Services

Sustainability Evaluation Report

DATE: August 19, 2021

TO: Annie Noble, Environmental Services Manager
Jim Angstadt, Director of Engineering Services
Public Works & Natural Resources (PWNR)

FROM: Alden Jenkins, Senior Civil Engineer, PWNR

SUBJECT: Sustainability Evaluation Report for Coffman Street
Busway Alternatives

About the Evaluation

Project Name: Coffman Street Busway
Project Type: Transportation
Lead Reviewer(s): John Gage, *Senior Civil Engineer*, PWNR Engineering
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Supporting Team Members: Phil Greenwald, *Transportation Planner*, Planning
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Date of Review August 5, 2021

**Project Stage/
Module(s) Completed**

<input checked="" type="checkbox"/>	Exploring/Setting Goals (Module 1)
<input checked="" type="checkbox"/>	Evaluating Alternatives (Module 2)

The City of Longmont's Sustainability Evaluation System (SES) is designated in the City's Sustainability Plan as the tool for reviewing the sustainability aspects of projects, plans, and programs. An evaluation of alternatives for the **Coffman Street Busway Alternative Evaluation** using the SES was completed on August 5, 2021 by a review team made up of representatives of Public Works & Natural Resources (Engineering, Environmental Services, Operations) and City of Longmont Planning.

The SES version used for this review was **Module 2**. **Module 2** is used to rate alternatives for the applicable sustainability topics. The categories and topics are aligned with and support the goals and policies in the City's Sustainability Plan, as well as the Envision Longmont Multimodal and Comprehensive Plan. The sustainability categories in the SES are:

Best Practices (Organizational)	Community and Individual Well-being
Best Practices (Assets and Infrastructure)	Economic Vitality
Best Practices (Financial)	Natural Environment
Buildings and Infrastructure	Materials and Waste
Energy	Water Resources
Transportation	Water Quality

Each of the above categories contains related sustainability topics to help guide the discussion and evaluation of the project being reviewed.

The **Coffman Street Busway** is a Capital Improvement Project that will transform Coffman Street from 1st Avenue to 9th Avenue into a multimodal transportation corridor. Three alternatives for the project have been developed that will be the subject of this SES review. All alternatives will include separated bike lanes, pedestrian improvements, accessibility improvements, infrastructure maintenance and preservation of the existing corridor. Bus/transit lanes are also included in all alternatives with the exact alignment of the transit lanes varying between alternatives. The location of the transit lanes influences how well the other shared project features (bike lanes, pedestrian improvements, etc.) can be implemented. The first step of Module 2 of the SES was used to select the sustainability topics that are applicable to the project. A list of all applicable topics can be found in the next section of this report.

Module 2 of the SES is used to rate the degree or level to which any topic in a category has been met for each alternative. Guidance for rating each topic is provided in the SES. The review team discusses the topics and assigns scores from 1 to 5 (low to high) for each topic that was found to be applicable to the project in Module 1. Topics deemed not applicable are not scored. The ratings are then totaled and normalized to a score of 1 to 10 for each category. **The total possible score for this project would be 100** if the rating for every topic was a "5"; the category of Energy were determined to be Not Applicable, leaving 10 categories. No project is perfect, so a score of 5 for all topics, or even most topics, is not possible; however, considering and discussing all of the topics and how they affect the overall sustainability of an alternative is as important as the scoring part of the SES process.

The results of Module 2 are shown in the following table and graph. The review team's comments from the Module 2 review were also captured in the SES to help explain or clarify the ratings and are summarized in the Sustainability Issues and Opportunities section after the Module 2 results.

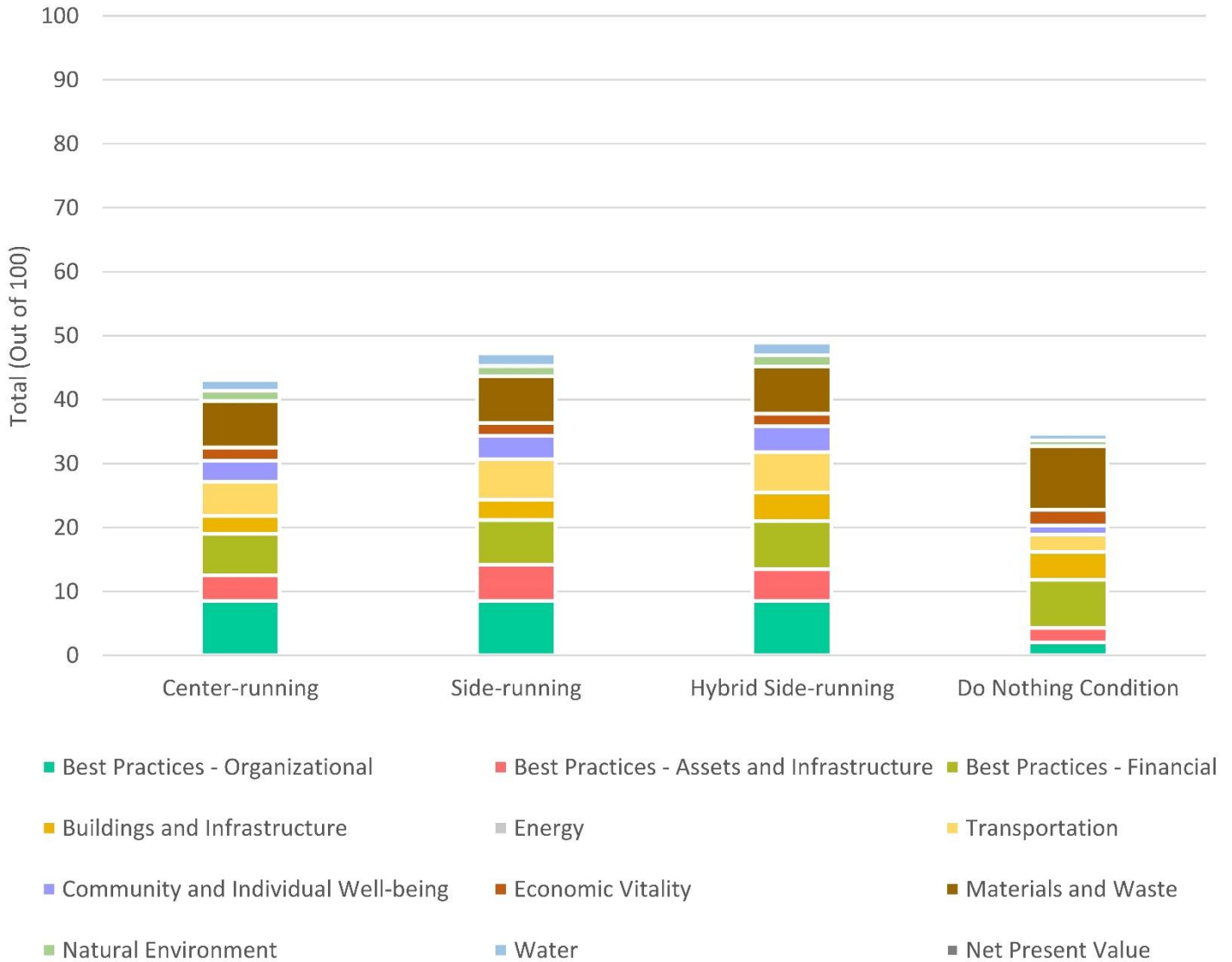
EVALUATION RESULTS

Sustainability Evaluation – Coffman Street Busway Alternatives

Sustainability Score Summary

	Center- running	Side- running	Hybrid Side- running	Do Nothing Condition
Best Practices - <i>Organizational</i>	8.50	8.50	8.50	2.00
Best Practices - <i>Assets and Infrastructure</i>	4.00	5.67	5.00	2.33
Best Practices - <i>Financial</i>	6.50	7.00	7.50	7.50
Buildings and Infrastructure	2.82	3.18	4.47	4.35
Energy				
Transportation	5.33	6.33	6.33	2.67
Community and Individual Well-being	3.33	3.67	4.00	1.50
Economic Vitality	2.00	2.00	2.00	2.40
Materials and Waste	7.33	7.33	7.33	10.00
Natural Environment	1.56	1.56	1.78	0.89
Water	1.67	2.00	2.00	1.00
Total (Out of 100)	43.05	47.23	48.92	34.64

Sustainability Score Graph



Category	Topic	Applicability of Topic to Project	Evaluation Comments
Best Practices <i>Organizational</i>	Alignment	Applicable	Sustainability Plan - water conservation differences could be determined by the type of vegetation Envision
	Integration	Applicable	1st & Main transportation project Asphalt rehabilitation Signal replacement Main street corridor plan Safe bike lanes Water line replacement
	Partnerships	Applicable	DRCOG coordination RTD
	Stakeholder engagement	Applicable	Boulder County, CDOT, DRCOG, residents/business owners, downtown business authority, council, equity; block by block input
Best Practices <i>Assets and Infrastructure</i>	Adaptability	Applicable	Operational/infrastructure - center running may have more difficulty in operational flexibility of utilities; snow removal Shade/Environmental - Hybrid has the best opportunity for increase in shade/reduction in heat island Side vs. Hybrid - side running can be configured in the future for other transportation configurations
	Commissioning	Applicable	No real equipment verification; all options will have basic asphalt/concrete /material testing; ADA
	Ongoing monitoring & evaluation	Applicable	Ridership, traffic loads, accident/safety

	Long-term maintenance and repair	Applicable	<p>Accessibility/ease of maintenance is more pertinent than cost/quantification. Scoring scale was modified</p> <p>Center-running presents the most concern with diverting traffic in the future; side-running has more to maintain (concrete/asphalt)</p> <p>Unquantified maintenance related to residential/commercial landscaping maintenance</p>
	Reliability	Applicable	<p>Similar materials used in all projects. No elements of the project that are significantly different.</p>
	Infrastructure Resilience	Applicable	<p>Center -running alternative may have some short term outages/service disruptions</p> <p>Hybrid alternative has narrow portions of road that have the potential to restrict traffic</p>
Best Practices <i>Financial</i>	Debt ratios	Not applicable	<p>Debt is not anticipated to be incurred with any alternative.</p>
	Funding of capital costs	Applicable	<p>Ambiguity around escalating project costs and where additional funding will come from. It is likely that there will not be debt financing/bonds required for any alternative.</p>
	Operations & Maintenance (O&M) cost recovery	Applicable	<p>Striping and maintenance of additional asphalt</p> <p>All alternatives will be able to be maintained with existing budgets; however there are different O&M costs for the options which is how these were scored</p>
	Rate impacts	Applicable	<p>All alternatives will not require a rate increase</p>

Buildings and Infrastructure	Accessibility	Applicable	Multi-modal accessibility and access to existing buildings Hybrid alternative may have more accessibility to buildings and homes
	Ambient light	Applicable	Slightly increased light because of safety signaling for cross walks
	Noise levels	Applicable	Potential for reduced noise with additional public transportation and the potential of electric buses Facilitating bike traffic may reduce noise levels in the corridor
	Cultural and historic preservation	Applicable	There are no historical/cultural infrastructure or buildings that will be impacted
	Development footprint	Applicable	Center-running is widening the road and impacting more area. Hybrid has the least impact.
	Floodplain protection	Not applicable	No impacts to floodplain are anticipated with any alternative
	Heat island effect	Applicable	Scoring was based on the amount of dark surface installed between alternatives
	Housing options	Not applicable	Housing will not be affected by this project
	Indoor air quality	Not applicable	Indoor air quality is not affected by this project
	Infill or redevelopment	Applicable	Additional accessibility and public transportation may increase the likelihood of future infill
	Low impact development (LID)	Applicable	Higher amount of green area in the hybrid alternative will be able to accommodate additional stormwater runoff. %s are not known at this time, so scores were comparative vs. quantitative
	Public spaces	Applicable	Additional crosswalks in the project, especially near public areas (Roosevelt Park)

	Scale and massing	Applicable	<p>Residents/businesses may have to maintain additional irrigation/green areas</p> <p>Some difficulty scoring (do residents prefer additional green areas w/ maintenance requirement or more asphalt maintained by the City?)</p> <p>Community survey wanted to preserve the existing culture of the corridor</p>
	Site compatibility	Applicable	<p>More rework of existing conditions will be required for side-running/center-running</p> <p>(Site compatibility and scale and massing had some trouble differentiating)</p>
	Storm drainage	Applicable	<p>Storm drainage will be planned for diversion to rain gardens/LID spaces. Hybrid has the best opportunity to incorporate this feature.</p>
	Vegetation	Applicable	<p>Trees/vegetation will be removed in all options. Less-so in hybrid, but similar amounts in side-running and center-running</p>
	Wayfinding	Applicable	<p>Main street wayfinding to help people find transportation opportunities on Coffman</p>
Energy	Alternative fuels	Not applicable	<p>Alternative fuel usage is not applicable to this project</p>
	Embodied energy	Not applicable	<p>Embodied energy usage is not applicable to this project</p>
	Energy use & efficiency	Not applicable	<p>Energy usage is not a component of this project</p>
	Renewable energy	Not applicable	<p>Energy usage, and therefore renewable energy, is not a component of this project</p>

Transportation	Bicyclists and pedestrians	Applicable	Center-running option may present additional safety concerns with increased pedestrian crossing/waiting in trafficked areas
	Freight delivery systems	Applicable	Center island or narrower roadway sections (center-running and hybrid) may make it slightly more challenging for on street freight deliveries
	Level of service	Applicable	Center-running impacts left turns
	Parking	Applicable	Increased multi-modal/transportation options, but parking will be reduced in all options. Some other planned projects near the corridor will increase parking.
	Transit	Applicable	All alternatives include dedicated transit lanes in some form but there isn't a discernable difference in performance between alternatives
	Vehicle miles traveled (VMT)	Applicable	Increased transit ridership Those that are driving will have to drive additional mileage because of left turns
Community and Individual Well-being	Arts and culture	Applicable	Arts & culture are not included with any alternative
	Crime and law enforcement	Applicable	All alternatives will include improvements to corridor lighting which may result in a minor decrease in crime
	Diversity and rights	Applicable	All alternatives will provide improvements to accessibility to various transportation modes which could have a positive effect on improving diversity
	Education (Project-Related)	Applicable	BRT education and multi-modal transportation; City-wide Q&A, corridor target education; presentation to LDDA Potential for more discussion around latinx/Spanish speaking community and ADA compliance

	Education (Public)	Applicable	Some increased accessibility to CSU/FRCC/CU
	Environmental justice	Applicable	There is no discernable difference between any alternative with respect to environmental justice
	Food and nutrition	Not applicable	Food and nutrition access will not be impacted by this project
	Hazard mitigation	Not Applicable	Vulnerability and hazard mitigation will not be impacted by this project
	Health and human services	Applicable	Increased public access to Boulder County Hub
	Healthy lifestyles	Applicable	Bike lane improvements and walking/accessibility improvements
	Safety features	Applicable	Center-running has pros/cons - no left turns out of driveways, but will also have people walking to the middle of the street for the bus stop Center-running and side-running will have some areas with slightly higher bicycle risk (more safety features for hybrid)
	Sense of community	Applicable	Hybrid has the most opportunity to build "sense of community" with the least space impacted. Greater access to RP, more green area/space
Economic Vitality	Business development	Applicable	Better lighting, more accessibility, better bike access to the downtown. Center-running may have the potential to create a negative perception from business owners due to elimination of left turns.
	Affordable housing	Not applicable	Affordable housing is not impacted by this project
	Jobs	Not applicable	This project does not have any impact to jobs
	Local commodities and services	Applicable	All alternatives will source locally/regionally for much of the project materials

	Economic resilience	Not applicable	This project does not have an impact to economic resilience
Materials and Waste	Deconstruction/Reuse	Applicable	Crushed asphalt/concrete applied during the project "can" be recycled (depends on the future market/technology for roadways) Opportunities for improved deconstruction/reuse exist by specifying that waste be taken to sites for recycling of materials (vs. landfill)
	Environmentally responsible materials	Applicable	All alternatives will use similar materials that will have some recycled content, but the process also contains VOCs, etc.
	Waste management	Applicable	The majority of material waste generated for each alternative will be concrete and asphalt, both of which can be readily recycled
Natural Environment	Agricultural lands	Not applicable	This project will not impact agricultural land
	Air quality	Applicable	Increased use of bus, walking, and cycling in the long term. There will be some impacts to "current" air quality with the requirement of material consumption.
	Aquatic habitat	Not applicable	This project will not impact aquatic habitat
	Climate adaptation	Not applicable	This project will not impact climate vulnerability
	Ecological connectivity	Not applicable	This project will not impact ecological connectivity
	Natural floodplains	Not applicable	This project will not impact floodplains

	Greenhouse gas emissions (GHG)	Applicable	<p>Increased use of bus, walking, and cycling in the long term. There will be some increased GHG initially during construction.</p> <p>Since this is a regional project, it contributes to decrease in GHG for the largest regional GHG emitting sector.</p>
	Tree canopy	Applicable	Center-running and side-running will remove trees. Hybrid will have less removals.
	Wildlife and habitat	Not applicable	This project will not impact wildlife and habitat
Water	Water conservation	Applicable	Center-running and side-running alternatives will have more hardscape requiring less water demand for landscaped areas
	Water source protection	Not applicable	This project will not impact water sources
	Water management	Applicable	All alternatives will have minimal water management features to adapt to changes
	Watershed health	Not applicable	This project does not impact watersheds
	Pollution control	Not applicable	This project does not have impact to control of pollution
	Stormwater management	Applicable	All alternatives will have rain gardens/flow diversion to pervious areas. Hybrid has the most opportunity with the highest amount of green space conserved/added to the project

Highlights of Sustainability Issues & Opportunities

The following is a list of issues that were discussed in the SES review and comments on the sustainability topics from the review team.

1. **Alignment** - In general, all alternatives align well with City plans and goals. The Hybrid alternative aligns slightly better with the Sustainability Plan and Envision Longmont.
2. **Integration** – All alternatives provide an opportunity to upgrade or repair aging infrastructure along the corridor either in advance or concurrently with full improvements.

3. **Stakeholder Engagement** – All alternatives will utilize a robust engagement process through design as well as construction. A combination of in-person and virtual meetings, surveys, questionnaires, and online forums will be used. Outreach will also be target to specific stakeholder groups including the Latinx community.
4. **Long-Term Maintenance & Repair** – The scoring criteria was modified to consider overall maintenance requirements. The Center-running alternative installs the most asphalt/concrete which is generally going to be expensive to maintain. The Center-running alternative would also pose challenges in some areas with performing maintenance while still maintaining operations.
5. **Funding of Capital Costs** – All alternatives can be funded without incurring additional debt. Estimated construction costs are likely going to be higher than originally anticipated. Reasons for increased costs include labor shortages, increased inflation and potential supply chain issues.
6. **Rate Impacts** – No alternative will require rate increases.
7. **Accessibility** – All alternatives will improve accessibility to biking, transit and walking. Current substandard sidewalks and curb ramps will be upgraded with all alternatives. The Hybrid alternative offers more opportunities to enhance accessibility when compared to the Center- and Side-running alternatives.
8. **Development Footprint** - All alternatives have construction requirements that will impact the existing corridor. The Hybrid alternative will better accommodate existing features compared to the other two alternatives.
9. **Heat Island Effect** – The Hybrid alternative will provide more soft-scaping and less hard/dark surfaces compared to the other two alternatives.
10. **Low-impact Development (LID)** – Higher amounts of available soft-scaping in the Hybrid alternative will be able to accommodate stormwater runoff. Center-running and Side-running alternatives also offer LID opportunities but on a more limited scale.
11. **Bicyclists and Pedestrians** – All alternatives offer significant improvements to bicycle and pedestrian facilities. There are some concerns with the Center-running alternative placing pedestrians in between bus and vehicle travel lanes. The Hybrid alternative will provide the best improvements to bicycle and pedestrian facilities.
12. **Parking** – All alternatives will have a significant reduction to availability of on-street parking. The Center-running alternative has the highest reduction while the Hybrid alternative has the least reduction.
13. **Transit** – All alternatives provide dedicated transit lanes in some fashion. The Center-running and Side-running alternatives provide continuous transit lanes which offer the most consistent transit service. The Hybrid alternative, while not providing dedicated transit lanes in all areas, still performs well enough when compared to the other two alternatives to rate it as equivalent.
14. **Community and Individual Well-being Category** – All alternatives score equally on nearly every topic under this category. Variation between alternatives occurs under “Safety Features” and “Sense of Community.” Since the Hybrid alternative offers more flexibility along the corridor to install improvements or maintain the existing features of the corridor it scores higher than the other two alternatives.
15. **Materials and Waste Category** – All alternatives will have significant usage of concrete and asphalt, both of which can be easily recycled and/or reused. Any existing concrete and asphalt along the project corridor can also be easily recycled although any recycled material may not explicitly make it back in to the project.

16. **Air Quality** – All alternatives will result in improved air quality with the increased usage of mass transit, cycling and walking modes of transportation. The three alternatives score equally in this topic since there are not differentiating features between the alternatives.
17. **GHG** – For the same reasons as improved air quality, all alternatives should result in an equivalent reduction in greenhouse gas emissions.
18. **Tree Canopy** - All alternatives will result in removal of trees along the corridor. The Center-running alternative will result in the most significant impact to trees while the Hybrid alternative will impact existing trees the least. All alternatives will likely have opportunities to reduce tree impacts as design details are developed.
19. **Water Conservation** – Due to increased hardscape areas the Center-running and Side-running alternatives will result in the greatest water conservation. The Hybrid alternative, while installing the most landscaping, may have opportunities to reduce water usage through targeted xeriscaping.
20. **Stormwater Management** – All alternatives will have opportunities to divert flows to pervious areas. The Hybrid alternative offers the best opportunities diver stormwater flows.

Evaluation Documentation

The full SES review spreadsheet is available at <L:\Environmental Services\Sustainability\Projects\Sustainability Evaluation System\SES project evaluations\Transportation - Coffman St>