

## 4. Strategies

### 4.1 General Objectives

The strategy synthesizing process resulted in a number of common themes that related to shared priorities for transportation outcomes. These aligned well with the goals and objectives from Iowa DOT and MPO plans, and helped form the overall objectives that carbon reduction strategies and projects should help support, in addition to reduced emissions. These objectives are not necessarily explicitly addressed in individual strategies due to their applicability across most or even all strategies. Ideally, implementation of the strategies in Section 4.3 will not only reduce transportation emissions, but will also help make progress towards the following objectives.

General objectives in addition to emission reduction



**Safety** is paramount in transportation planning. A safe transportation system minimizes incidents, crashes, injuries, and fatalities. While all strategies should aim to improve, or at least not worsen, safety of the transportation system, some strategies may need enhanced safety considerations, such as the best way to accommodate non-motorists.

A **sustainable** transportation system is available and in good condition, meeting the needs of today and preparing for the future. Sustainability means maintaining assets and making stewardship of the system a priority, and maximizing the existing transportation infrastructure and right-of-way (ROW) before adding to it. It also means making choices that consider economic, environmental, and societal factors. Sustainability can be integrated throughout the transportation system life cycle, from using more sustainable materials in construction to managing the right-of-way in a more environmentally friendly manner. As demonstrated by the CRS, reducing GHG emissions is a key component of creating and maintaining a sustainable transportation system.

**Accessibility** means users can readily access the transportation system and services without unnecessary barriers. Accessibility is more than just the physical availability of the transportation system or service – true accessibility provides access to desired destinations or outcomes across ability levels in a manner that is easy to use, safe, comfortable, affordable, and timely. Given that many of the strategies to reduce emissions relate to multimodal transportation, there is a strong link between accessibility and emission reduction planning.



**Equity** means that the benefits and burdens of transportation are distributed fairly, and individuals have access to affordable and reliable transportation options that help them meet their needs. Fairly does not necessarily mean equally, as there may need to be additional consideration for underserved groups to be able to achieve the same level of access to and benefit from the transportation system as other groups. This can be particularly true when implementing technology-focused strategies that may require additional resources.

**Connectivity** is key for many carbon reduction strategies. For example, when people are encouraged to use other modes rather than driving, those modes need to fully connect to destinations or other transportation options to complete the trip in order to be effective. As technology evolves, the infrastructure to support alternative fuel vehicles needs to be readily available throughout the transportation network to enable people to fully transition to new fuel sources.

**Flow** means the transportation system reliably and efficiently moves people and goods while minimizing user delay and cost. Some carbon reduction strategies relate directly to this objective, such as those to reduce congestion and bottlenecks. But similar to connectivity, flow is also about a smooth transportation journey from beginning to end, and is an important consideration for multimodal and technology-focused strategies as well.

**When implementing projects to reduce emissions, it is important to consider possible co-benefits (improvements) in other performance areas, as well as trade-offs where emission reduction projects may decrease performance in other areas.**

## 4.2 Implementation Considerations

The purpose of the CRS is to support the reduction of transportation emissions, and the CRP has provided a specific funding source for projects that reduce transportation emissions. However, it is important to note that reducing carbon emissions will typically be one of multiple goals or needs that a project is designed to meet, whether it is being funded through the CRP or other sources. As such, emission reductions will often have to be weighed against other objectives, such as safety and infrastructure condition. Sometimes the reduction of emissions can have co-benefits with other objectives, such as reducing traffic bottlenecks or increasing the use of public transit. However, sometimes there are trade-offs to evaluate when considering emission reduction strategies. For example, using alternative fuel sources may lower transportation emissions but may not decrease congestion or help an area shift its land use patterns from being auto-centric.

The issue of trade-offs among project goals and needs, as well as varying goals and needs across the state, is why the Iowa DOT's CRS is a comprehensive strategy that is meant to be applied strategically based on the specific area. As discussed in Section 5, MPOs will be programming CRP funding towards projects in their areas. Thus, while the strategies listed on the following pages are statewide strategies, they are not prioritized at the statewide level. Each MPO will be able to focus on the strategies that are priorities in their areas for their planning and programming efforts. Strategies also range from planning level to project level, may involve or require other stakeholders than transportation agencies, and may align better with other funding opportunities than CRP. The aim is to implement a broad array of strategies to decrease GHG emissions across transportation, and not to only focus on those specifically within the purview of the Iowa DOT or MPOs, or those most likely to receive CRP funding.

## 4.3 Strategies to Reduce Transportation Emissions

### Multimodal Transportation



**Objective:** Support multimodal travel options that enable people to travel by less carbon-intensive modes than single-occupant vehicles.

- Invest in projects related to **public transit** fleets, facilities, infrastructure, services, and communications to reduce emissions directly through more efficient vehicles and facilities and indirectly through expanding service, access, intermodal connections, and education to increase the utilization of public transit.
- Invest in projects related to **bicyclists and pedestrians**, including constructing on- and off-road facilities, enhancing bicycle and pedestrian networks, creating intermodal connections, and facilitating education and encouragement activities to reduce emissions through increased utilization of bicycling and walking.
- Adopt and implement **Complete Streets** policies to ensure roadways serve all users, not just motorists.
- Support alternatives that **reduce the number of single-occupant vehicles** on the road, such as carpooling and vanpooling, as well as shared mobility and micromobility options such as mobility hubs and shared fleets of cars, bikes, and scooters.
- Support **passenger and commuter rail** planning and development efforts, including intermodal connections for existing and potential service.

### Operational Efficiency



**Objective:** Reduce emissions by improving the efficiency of transportation system operations through strategies that improve flow and reliability by reducing congestion and managing demand rather than the construction of new capacity.

- Use **Transportation Systems Management and Operations (TSMO)** strategies to monitor and manage the transportation system by utilizing equipment, technology, and infrastructure improvements to improve traffic flow and reduce delays from recurring and non-recurring congestion.
- Maintain the transportation system in a **state of good repair** to prevent or mitigate congestion and bottlenecks through infrastructure improvements.
- Utilize and promote **Travel Demand Management (TDM) strategies** that shift trips to less carbon intensive modes, increase vehicle occupancy rates, or reduce demand, especially during peak hours.



## Alternative Fuels

Objective: Reduce emissions by utilizing and supporting alternative and renewable fuel vehicles across modes, particularly cars, commercial vehicles, and transit vehicles.

- Invest in **alternative and renewable fuel infrastructure** that supports low or no emission vehicles.
- Transition to low or no emission vehicles, such as hybrid or electric vehicles or **vehicles that utilize alternative and renewable fuels**.
- **Coordinate** with governmental agencies, utilities, industry partners, and other stakeholders to advance efforts such as reducing the carbon intensity of fuels, increasing the fuel efficiency of vehicles, encouraging the use of lower emission fuels and vehicles, encouraging the use of alternative and renewable fuel vehicles, and ensuring the necessary utility and fueling infrastructure is in place.

## Construction

Objective: Reduce emissions during the design, construction, operation, and maintenance of the transportation system.

- Incorporate **sustainable elements or construction practices** that utilize lower carbon materials or support carbon reduction into infrastructure design.
- Utilize transportation right-of-way for **cross-sector purposes**, such as renewable energy infrastructure or generation.
- **Reduce carbon impacts during construction projects** by utilizing alternative modes, implementing operational strategies, and staging projects to minimize emissions from traffic delays and vehicle miles traveled.

## Other

Objective: Consider other methods to reduce transportation emissions, either directly or through coordination with other entities.

- **Integrate transportation and land use planning** across jurisdictions to ensure that multimodal options are accessible, safe, and efficient modes to utilize for transportation.
- **Improve freight efficiency** through infrastructure improvements that facilitate the use of less carbon intensive modes, such as developing intermodal connections and upgrading rail and water infrastructure.
- Explore **other projects or programs** that could help reduce carbon emissions, potentially including carbon sequestration, carbon trading programs, or offsetting carbon emissions.