



Allentown Environmental Advisory Council's Road Improvement Sustainability Framework

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For each plan that is being considered, ask yourself the following questions. For every criteria that the answer is yes, add a point to the plan's final score for its sustainability ranking. If the same design element satisfies more than one design criteria, give yourself a point each time. See the end of this document for examples of each criterion.

Environmental: To what extent does this solution reduce environmental harm?

- ☐ Does it utilize sustainable building materials?
- ☐ Does it reduce stormwater runoff?
- ☐ Does it facilitate using public transportation?
- ☐ Does it utilize low emitting energy vehicles and machinery for construction?
- ☐ Does the road design minimize noise pollution?
- ☐ Does the road design minimize air pollution?
- ☐ Does the road design minimize the potential for litter?

Social: To what extent does this solution allow for accessibility and inclusivity of users?

- Walking and biking
 - ☐ Is the improvement is conducive to walking and biking?
 - ☐ Does the design use barriers that separate sidewalks and/or bike lanes from roads?
 - ☐ Is the barrier vegetated?
- Accessibility
 - ☐ Are the intersections designed to be ADA-compliant?
- Safety
 - ☐ Does the road design encourage safe driving?

Economic: To what extent does this solution minimize environmental costs?

- Community cost considerations
 - ☐ Are traffic management factors being implemented to increase fuel efficiency, and thereby reduce costs for community members?
- Municipality cost considerations
 - ☐ Will the road improvement last over 15 years?
 - ☐ Will the road improvement last over 30 years?

Resilience: To what extent does this solution hold up to the changing climate?

- ☐ Does the design accommodate for heavy rains and flooding?
- ☐ Does the design withstand extreme heat (temperatures as high as 105°F)?
- ☐ Does the design accommodate for extreme ice and snowy conditions (temperatures as low as -15°F)?
- ☐ Does this road design require frequent maintenance?
- ☐ Does this design make it easy to repair sections of the road without having to tear out and rebuild significant portions?

Sustainability Score Calculation

Each criteria that the road improvement plan incorporates is awarded a point.

Total possible points: 20 points

1-5 points: Not sustainable road improvement

6-10 points: Somewhat sustainable road improvement

11-15 points: Moderately sustainable road improvement

16-20 points: Highly sustainable road improvement

Examples

Does it utilize sustainable building materials?

- Implementing recycled rubber tire roadways, [bio-asphalt](#), recycled asphalt pavement, [recycled concrete aggregate](#), locally sourced materials

Does it reduce stormwater runoff?

- Implementing permeable pavers, [porous concrete](#), infiltration basins, roadside vegetation, green streetscapes

Does it facilitate using public transportation?

- Implementing bus stop signs, bus stop vestibules, bus stop route maps, electric buses, dedicated bus lanes, pedestrian overpasses, well lit bus stops

Does it utilize low emitting energy vehicles and machinery for construction?

- Implementing hybrid or electric construction vehicles, [GPS guided machinery](#) that optimizes performance, LED lights, [Smart tools](#)

Does the road design minimize noise pollution?

- Implementing porous concrete for quieter roads, roadside vegetation, speed control measures

Does the road design minimize air pollution?

- Making the road EV charging ready (running conduit), prioritizing public transportation (bike lanes, side walks buses), implementing synchronized traffic lights, installing EV charging stations, implementing roadside vegetation

Does the road design minimize the potential for litter?

- Implementing trash receptacles that are large enough that they don't overflow onto the road, trash receptacles located at or near bus stops and parking lots, roads with wide enough shoulders to allow room for cleaning vehicles, signage discouraging littering

Are the road improvements conducive to walking and biking?

- Implementing wide sidewalks, buffered bike lanes, public bike racks, benches, pedestrian actuated signals, bike-sharing programs, bike-friendly road surfaces, pedestrian overpasses

Does the design use barriers that separate sidewalks from roads?

- Roadside vegetation, planters, [flexible delineator posts](#), raised medians, [bollards](#), fences, concrete barriers

Is the barrier vegetated?

- Installing native grasses, native tree strips, native shrubbery, raised concrete planters, flower beds

Are the intersections designed to be [ADA-compliant](#)?

- Implementing curb ramps, sidewalks, crosswalks, proper signage, audible signals at intersections, tactical markers

Does the road design encourage safe driving?

- Implementing speed bumps, clear signage, [Rectangular Rapid Flashing Beacons](#), reflective lane markings, street lights, smart traffic signals

Are traffic management factors being implemented to increase fuel efficiency, and thereby reduce costs for community members?

- Implementing roundabouts, [adaptive signal control systems](#), designated bus lanes, high-occupancy vehicle lanes, traffic sensors and real-time updates, [smart parking systems](#), idling regulations

Does the design accommodate for heavy rains and flooding?

- Implementing proper stormwater drainage systems, crowned surfaces, cross slope, green infrastructure (rain gardens, green roofs, bioswales), porous pavement, [culverts](#), detention basins

Does the design withstand extreme heat (temperatures as high as 105°F)?

- Implementing temperature resistant asphalt, [cool pavement](#), [expansion joints](#), roadside vegetation, [sturdy subgrade](#), sealcoating, thermal insulation coatings

Does the design accommodate for extreme ice and snowy conditions (temperatures as low as -15°F)?

- Implementing cross slope roads, heated road systems, wide shoulders, reflective road markings, [anti-icing additives](#) mixed in road materials

Does this road design require frequent maintenance?

- Implementing roundabouts instead of traffic lights, porous pavement, rubberized asphalt concrete, cross slope, sealcoating, strong road base

Does this design make it easy to repair sections of the road without having to tear out and rebuild significant portions?

- Implementing modular pavement, precast concrete panels, utility access panels, [cold in-place recycling](#)