# Environmental Mitigation and Consultation

Federal regulations outlined in the Fixing America's Surface Transportation Act (FAST Act) require the *Genesee: Our County, Our Future* planning document, the Long Range Transportation Plan (LRTP) for Genesee County, to include "a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the metropolitan transportation plan. This discussion shall be developed in consultation with Federal, State and Tribal land management, wildlife, and regulatory agencies." A three-step process was used to help address this federal requirement:

- Define and inventory the environmentally sensitive species and resources
- Identify and assess likely impacts on these species and areas from transportation projects
- Address possible mitigation at the system-wide level through consultation with other agencies.

## Genesee County's Endangered, Threatened and Candidate Species

The intent of this section is to raise awareness of the variety of sensitive species in Genesee County. The report contains potential environmental mitigation activities (at the system-wide level) for species that may be impacted by planned transportation and community development projects. This section does not imply that negative impacts from the projects will definitely occur. It suggests that negative impacts may at times occur, but that many steps can be taken to avoid or mitigate those potential negative impacts. Specific projects that actually encounter endangered, threatened or candidate species will need to carefully consider how to proceed with the project in order to avoid or mitigate any possible impacts on the species.

## Genesee County's Environmentally Sensitive Resources

This section identifies areas where the potential exists for environmental impacts from transportation and community development projects. These areas of potential impact are located by using Geographic Information Systems (GIS) data layers. A data layer representing all projects is mapped and buffered, using buffers of different sizes depending on the type of project. For example, a trail project has a smaller buffer zone around it than a capacity project, because the trail project is thought to have a smaller area of impact. Then the project buffers are intersected with Genesee County's environmentally sensitive resources. Where a project buffer and an environmentally sensitive resource intersect, there is potential for an environmental impact.

All maps indicating the proposed projects and the locations where they coincide with specific environmentally sensitive areas can be found in Appendix C. The area inside the buffer zone is where potential impacts may happen.

Table 1 list the environmentally sensitive resources and displays the different sizes of buffer zones around the projects by type. Table 2 identifies how many projects by type may impact the resources. For example, of the 67 pavement projects analyzed, 20 of them come within ¼ mile of a water resource, while 0 comes within 250 feet of a historic bridge. The locations of future capacity projects that may have a larger impact on environmentally sensitive resources is included in Appendix C.

The last part of the report provides potential environmental mitigation activities (at the system-wide level) to help avoid or mitigate damages from constructing projects near these resources. These mitigation activities should be considered during the planning and design phases as well as during the construction and maintenance phases. This section does not imply that negative impacts from the projects will definitely occur. It suggests that negative impacts may at times occur, but that many steps can be taken to avoid or mitigate those potential negative impacts.

## Environmental Mitigation Process

Agencies that are responsible for environmental protection, historical preservation, natural resource management, transportation services, economic development, human services, and land use planning were consulted with to obtain their input regarding this report. See Appendix A for a list of agencies that were contacted for this section. Through these consultation efforts, staff hopes to consider potential system-wide environmental impacts and how such impacts, if they affect environmentally sensitive areas, might be mitigated.

## Consultation

The consultation process had some similarities to the environmental mitigation notification process and because of that, some crossover was used between the two processes. The Public Participation List that the Genesee County Metropolitan Planning Commission (GCMPC) uses for transportation and community development planning outreach was used as a starting point for the consultation process. The participation list encompasses many of the types of agencies and contacts targeted in the environmental mitigation process.

For those agencies targeted strictly for consultation, a process of notification and information was chosen. A letter explaining the consultation process was provided to those agencies in the participation list that fit the criteria set forth in the FAST Act. A sample of this letter as well as the environmental mitigation letter is listed

**Table 1**

| Environmental Resource | Project Type | | | | | | |
|---|---|---|---|---|---|---|---|
| | Bridge | Congestion Capacity | Safety | Non-motorized | Pavement | Facilities | Housing |
| Water Resources | 250′ | ¼ mile | ¼ mile | 250′ | ¼ mile | 250′ | 250′ |
| Wetlands | 250′ | ¼ mile | ¼ mile | 250′ | ¼ mile | 250′ | 250′ |
| Floodplains | 250′ | ¼ mile | ¼ mile | 250′ | ¼ mile | 250′ | 250′ |
| Wellhead Protection Areas | 250′ | ¼ mile | ¼ mile | 250′ | ¼ mile | 250′ | 250′ |
| Woodlands | 250′ | ¼ mile | ¼ mile | 250′ | ¼ mile | 250′ | 250′ |
| Parks and Recreation Areas | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ |
| Historic Sites | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ |
| Cemeteries | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ |
| Heritage Route | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ |
| Historic Bridges | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ |
| Non-motorized Facilities | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ | 250′ |

| Table 2 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Type (Number of Planned Projects) | Number of Projects that Could Potentially Impact Resources | | | | | | | | | | |
| | Water Resources | Wetlands | Floodplains | Groundwater Resources | Woodlands | Parks and Recreation Areas | Historic Sites | Cemeteries | Heritage Route | Historic Bridges | Non-motorized Facilities |
| Bridge (7 projects) | 5 | 4 | 4 | 0 | 7 | 3 | 0 | 0 | 41 | 0 | 3 |
| Congestion (Capacity) (11 projects) | 11 | 10 | 5 | 1 | 11 | 2 | 1 | 1 | 1 | 0 | 3 |
| Safety (18 projects) | 14 | 10 | 10 | 5 | 18 | 2 | 0 | 0 | 0 | 0 | 3 |
| Non-motorized (10 projects) | 8 | 5 | 4 | 2 | 10 | 3 | 3 | 0 | 1 | 0 | 2 |
| Pavement (67 projects) | 50 | 41 | 38 | 11 | 67 | 16 | 8 | 3 | 2 | 0 | 14 |
| Facilities (12 projects) | 2 | 1 | 2 | 1 | 11 | 4 | 0 | 0 | 0 | 0 | 0 |
| Housing (1 Project) | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

in Appendix A. An explanation of the *Genesee: Our County, Our Future* planning document, how the LRTP 2045 plan development process is included, as well as information about how that process is utilized in the Flint/Genesee County Metropolitan Area and the role of the Genesee County Metropolitan Alliance was included in the mailing. Finally, a listing of the proposed 2045 Long Range Transportation Plan projects was also provided along with directions on how to provide input on the planning process, how to submit comments on the project list and how to contact GCMPC staff if direct interaction was preferred. Those agencies targeted through the Environmental Mitigation process received a web link to the full environmental narrative including the maps and GIS data that highlighted potentially affected environmentally sensitive areas.

During the month of August 2019, both the mitigation and consultation letters were mailed to the appropriate agencies. Agencies were asked to submit comments and attend a public comment session on Friday, September 6, 2019. This public comment session provided an opportunity for consultation with other agencies as well as GCMPC. Staff had available copies of this report, all maps, and digital copies of the GIS files used. Although it was not required for consultation agencies to attend, it did provide an opportunity to engage in person-to-person discussion regarding the proposed projects as well as answer any questions an agency may have. Agencies also had the option to submit written comments if they were unable to attend. Comments are attached in Appendix A.

## GENESEE COUNTY'S ENDANGERED, THREATENED, AND CANDIDATE SPECIES

The Endangered Species Act (ESA) of 1973, as amended, is Federal legislation that was intended to protect endangered and threatened species and the ecosystems on which they depend for survival. The ESA also intended for conservation programs to be carried out for these species to prevent the extinction of native plants and animals. Before a plant or animal species can obtain the protection of the ESA, it has to be added to the Federal lists of threatened and endangered plants and wildlife. The List of Endangered and Threatened Wildlife (50 CFR 17.11) and the List of Endangered and Threatened Plants (50 CFR 17.12) contain the names of all species of mammals, birds, reptiles, amphibians, fishes, insects, plants and other creatures that have been determined by the USFWS and the National Oceanic & Atmospheric Administration (NOAA) Fisheries (for most marine life) to be in greatest need of Federal protection.

Candidate species are plants and animals for which the USFWS has sufficient information on their biological status along with the threats they face, to propose them as endangered or threatened under the Endangered Species Act. However, development of a proposed listing regulation is precluded by other, higher priority listing activities. Candidate species receive no legal protection. However, the USFWS encourages concerned parties to form partnerships to conserve these species, because they are species that may warrant protection in the future under the ESA.

The USFWS endangered species specialists work with staff from other resource programs (such as refuges and fisheries), representatives of other Federal and State natural resource agencies, local

and tribal government, academia, businesses, industries and conservation groups to identify potential candidate species. After enough information is developed to make sound determinations about a species' status, the USFWS Field Offices consider whether it meets the criteria for listing under the ESA. The USFWS Regional Offices then provide recommendations for additions to the candidate list to the USFWS Director. The Director's concurrence is required before a species becomes an official candidate species.

A species is listed by the USFWS under one of two categories, either endangered or threatened, depending on the species' status and the degree of the threat it faces. A species is considered "endangered" when it is in danger of extinction throughout all or a significant part of its range. A species is considered "threatened" when it is likely to become endangered in the foreseeable future. A species is added to the list when it is determined to be endangered or threatened by any of these factors:

- the present or threatened destruction, modification, or curtailment of the species' habitat or range
- over-utilization for commercial, recreational, scientific or
- educational purposes
- disease or predation
- the inadequacy of existing regulatory mechanisms
- other natural or manmade factors affecting the species' survival

The USFWS is required to follow a rulemaking procedure in order to list a species as threatened or endangered. The USFWS publishes notices of

review that identify United States species that

meet the definition of threatened or endangered, as a first step in the process of assessing a species' status. Through notices of review, the USFWS looks for biological information that will complete the status reviews of these particular species. These notices are published in the Federal Register, and there is a public comment period and public hearings are held. Interested parties can provide comments, additional information or statements during this time. USFWS also issues press releases, has special mailings, and directly informs the scientific community and other Federal and State agencies. A legal notice is also published in newspapers serving each area in which the species is believed to be present. Public hearings may also be held in cases of high pubic interest if requested to do so within 45 days of issuing a proposal.

### ENDANGERED AND THREATENED SPECIES IN GENESEE COUNTY

Genesee County is home to many species that are included in the candidate, endangered or threatened species categories. The USFWS identifies four (4) federally listed species for Genesee County, while the Michigan Natural Features Inventory (MNFI) identifies thirty-four (34) state listed species. The MNFI is a cooperative program of Michigan State University Extension and the Michigan Department of Natural Resources (MDNR). MNFI maintains the official state database for threatened and endangered species and species of special concern (candidate species). Potential environmental mitigation activities, their official status, and habitat is included in Appendix B of this report.

#### Federally Listed Species

- Indiana Bat
- Northern Long-Eared Bat
- Eastern Prairie Fringed Orchid
- Eastern Massasauga Rattlesnake

#### State Listed Species

- Elktoe
- Slippershell
- Henslow's Sparrow
- Hairy Angelica
- Cooper's Milk-vetch
- Rusty-patched bumble bee
- Black and gold bumble bee
- Yellow banded bumble bee
- False Hop Sedge
- Campeloma Spire Snail
- Spotted Turtle
- White Lady-slipper
- Blanding's Turtle
- Peregrine Falcon
- Showy Orchis
- Bald Eagle
- Goldenseal
- Whorled Pogonia
- Twinleaf
- Flutedshell
- Furrowed Flax
- Pickerel frog
- Copper Button
- Woodland Vole
- American Lotus
- Osprey
- Prairie Fringed Orchid
- Round Pigtoe
- Pink heelsplitter
- Eastern Massasauga Rattlesnake
- Deertoe
- Flat Dome
- Ellipse
- Rainbow

## GENESEE COUNTY'S ENVIRONMENTALLY SENSITIVE RESOURCES

The environmental impacts of both transportation and community development projects continue for years to come as current and future generations are affected by what is built today. It is important to pay attention to the level of care taken with the planning, designing, constructing and maintenance of all projects. In order to help preserve and protect our environmentally sensitive resources while building up our infrastructure, this section of the report includes suggested guidelines. These guidelines are potential environmental mitigation activities (at the system-wide level) that should be used to help avoid or mitigate damages from constructing projects near our environmentally sensitive resources. These resources have been identified as water resources, wetlands, floodplains, groundwater, woodlands, parks and recreation areas, historic and archaeological resources, cemeteries and burial grounds, Heritage Routes and Natural Beauty Roads, historic bridges, and non-motorized facilities. This section does not state that negative impacts from the projects will definitely happen. Rather, it is intended to raise awareness that negative impacts may happen, but that many steps can be taken to avoid or mitigate those potential impacts.

## GENERAL GUIDELINES FOR PROJECTS

The following general guidelines should be considered during the planning, design, construction, and maintenance of all projects. These guidelines represent good planning practice and will help achieve quality projects while avoiding or mitigating negative environmental impacts.

### Planning and Design Guidelines / Mitigation Activities

- Use Context Sensitive Solutions (CSS). CSS is a collaborative interdisciplinary approach to developing projects. Under CSS, local governments, road commissions, industry groups, land use advocates, state agencies, and the public are included early and often in a project's planning phase. A cooperative mindset and an awareness of local community interests help create projects that fit their surroundings while effectively serving needs. Applying the CSS principles results in projects that respect the scenic, aesthetic, historic, economic, and environmental character of the local community. The principles of CSS should be applied wherever possible during the life cycle of the project.
- Identify the area of potential impact related to the project. This area should include the immediate project area, any potential borrow and fill areas, hauling roads, prep areas, contractor areas, and any other related project development areas.
- Traffic Noise mitigation should be considered prior to construction in the project planning process. The avoidance of future noise impacts and costs can be prevented if coordinated with local land use planning for existing undeveloped land abutting freeways in metropolitan areas.
- Conduct an inventory to determine if any environmentally sensitive resources could be impacted by the project.
- Use the Genesee County Hazard Mitigation Plan to determine if impacted resources are addressed in the plan. If so, remain consistent with the plan.
- Conduct a pre-construction meeting with local community officials, contractors, and

subcontractors to discuss environmental protection. Communicate the agreed-upon preservation goals to everyone working on the project. Make sure the local community is kept informed of any special requirements such as ordinances, site plan reviews, etc.

- Avoid impacts to environmental resources by possibly limiting the project scope or redesigning it with changes to alignment, design speed, retaining walls, cross-section narrowing, etc.
- Mitigate impacts as much as possible if they prove to be unavoidable. Where required, coordinate the evaluation of potential impacts, the exploration of possible alternatives, and the development of mitigation strategies with appropriate federal, state, and local officials.
- Integrate stormwater management into the design of the site. If appropriate, use low-impact development practices such as swales, rain gardens, and native plantings, to channel stormwater into the ground.

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing sensitivity of environmental resources into plans, specifications, and estimates provided to construction contractors. Note the types of activities that are not permitted in sensitive areas, such as stockpiling, clearing, and construction equipment.
- Confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Use the least obtrusive construction techniques and materials
- Install construction flagging or fencing around environmental resources to prevent encroachment
- Minimize or avoid site disturbance. As needed:
  - Protect existing vegetation and sensitive habitats
  - Implement erosion and sediment control
  - Protect water quality
  - Protect cultural resources
  - Minimize noise and vibrations
  - Provide for solid waste disposal and worksite sanitation
- Time construction activities to minimize land disturbance whenever possible, but especially during the rainy season or during winter for natural resource protection and during the high-use season for resources open to the public
- Pay close attention to the possibility of uncovering archeological remains when using heavy equipment
- Implement erosion control practices to capture sediments and control runoff before site disturbance occurs
  - Minimize the extent and duration of exposed bare ground to prevent erosion
  - Establish permanent vegetative cover immediately after grading is complete
  - Do not stockpile materials within sensitive areas
  - Employ erosion control techniques
  - Prevent tracking of sediment onto paved surfaces
- Incorporate storm water management into the construction phase.
  - Prevent the direct runoff of water containing sediment into waterways. All runoff from the work area should drain through sedimentation control devices prior to entering a body of water.
  - Sweep the streets to reduce sediment entering the storm drainage system during and after construction activities.
  - Block storm drains or add best management practices to them in areas where construction debris, sediment, or runoff could pollute waterways.
- Do not dispose of spoil material in or near natural or cultural resources.
- Properly handle, store, and dispose of hazardous materials such as paint, solvents, epoxy, etc. and utilize less hazardous materials when possible. Use spill control and clean-up practices for leaks and spills of oil, fuel or hazardous materials. Utilize dry clean-up methods such as absorbents if possible. Never let a spill enter the storm drain system or waterways.
- Keep equipment in good working order and leak-free. Avoid equipment maintenance or fueling near sensitive areas. If fueling on site is required, keep a spill kit on the fuel truck. Avoid hosing down construction equipment on the site, unless the water is contained and does not enter the storm drain system or waterways.
- Identify and implement salt management techniques to reduce the impacts of salt on area waterways.
- Use integrated pest management techniques if using pesticides during maintenance operations.
- Conduct on-site monitoring during and immediately after construction to ensure that environmental resources are protected as planned.

## SPECIFIC GUIDELINES FOR PROJECTS

The following specific guidelines should be considered during the planning, design, construction, and maintenance of all projects that may impact specific environmentally sensitive resources. These guidelines represent good planning practice and will help achieve quality projects while avoiding or mitigating negative environmental impacts on the identified resources.

### Water Resources

Michigan's water resources are an irreplaceable treasure. There are many pressures facing our water resources, such as invasive species, beach closures due to pollution, sewer overflows, wetland loss, and the protection and restoration of the Great Lakes. Without careful stewardship of our water resources, this precious resource could someday be irreparably damaged.

Potential impacts on water resources need to be considered during the planning, design, construction, and maintenance of projects. Water resources are considered impacted if polluted stormwater runoff reaches rivers and lakes, area vegetation is removed, damage to the stream beds or banks is caused by heavy equipment, or accidental spills such as paint, salt, solvent, etc., run directly into bodies of water.

### Planning and Design Guidelines / Mitigation Activities

- Identify the area of potential impact related to the project. Conduct an inventory to determine if any water resources could be impacted by the project.
- If possible, avoid impacts to water resources. Where impacts are unavoidable, mitigate them as much as

possible.

- Determine if a watershed management plan exists, and if so, work with watershed planners to remain consistent with the plan.
- Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to discuss water resource protection. Communicate the agreed-upon water resource preservation goals to everyone working on the project. Discuss with the local community any requirements for stormwater management such as ordinances or a site plan review process.
- Integrate stormwater management into the site design. If possible, use low-impact development practices such as swales, rain gardens and native plantings. These help infiltrate stormwater into the ground. Avoid diverting stormwater directly into waterways.
- Minimize the use of culverts where possible. (Culvert crossings tend to provide very little or no habitat within the culvert.) If culverts are used, consider utilizing a design that reduces impacts to fish and wildlife, such as open-bottom culverts.

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing sensitivity of water resources into plans,

  specifications, and estimates provided to construction contractors. Note the types of activities that are not permitted in sensitive areas.
- Confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Install construction flagging or fencing around water bodies to prevent encroachment.
- Avoid having heavy equipment in streams. If in-stream work is necessary, plan it to occur as a single event and limit machinery access to a single point on one bank. Use bioengineering techniques where possible, to stabilize stream banks.
- Maintain as much riparian vegetation as possible. If riparian vegetation is damaged or removed during construction, replace with native species as soon as possible.
- Implement erosion control practices to capture sediments and control runoff before site disturbance occurs
  - Minimize the extent and duration of exposed bare ground to prevent erosion
  - Establish permanent vegetative cover immediately after grading is complete
  - Do not stockpile materials within sensitive areas
  - Employ erosion control techniques
  - Prevent tracking of sediment onto paved surfaces
- Incorporate stormwater management into the construction phase.
  - Prevent the direct runoff of water containing sediment into streams. All runoff from the work area should drain through sedimentation control devices prior to entering a body of water.
  - Sweep the streets to reduce sediment entering the storm drainage system during and after construction activities.
  - Block storm drains or add best management practices to them in areas where construction debris, sediment, or runoff could pollute waterways.
- Properly dispose of solid waste and trash to prevent them from ending up in lakes and streams.
- Properly handle, store, and dispose of hazardous materials such as paint, solvents, epoxy, etc. and utilize less hazardous materials when possible. Use spill control and clean-up practices for leaks and spills of oil, fuel or hazardous materials. Utilize dry clean-up methods such as absorbents if possible. Never let a spill enter the storm drain system or waterways.
- Keep equipment in good working order and leak-free. Avoid equipment maintenance or fueling near bodies of water. If fueling on site is required, keep a spill kit on the fuel truck. Avoid hosing down construction equipment on the site, unless the water is contained and does not enter the storm drain system or waterways.
- Identify and implement salt management techniques to reduce the impacts of salt on area waterways.
- Use integrated pest management techniques if using pesticides during maintenance operations.
- Conduct on-site monitoring during construction to ensure that water resources are protected as planned.

## Wetlands

Wetlands are described as areas of land that are covered with water for at least part of the year and contain plants and animals that have adapted to these watery conditions. Wetlands are comparable to tropical rain forests and coral reefs in that they are one of the most biologically diverse systems in existence. Wetlands are also commonly referred to as bogs, marshes, or swamps. Wetlands are important to water resource protection in many ways. Wetlands provide enormous environmental benefits:

- flood and storm control via hydrologic absorption and storage capacity
- wildlife habitat for breeding, nesting, feeding grounds, and cover for many forms of wildlife, specifically waterfowl (including migratory waterfowl) and rare, threatened or endangered species
- protection of subsurface water resources, valuable watersheds, and recharge for groundwater supplies
- pollution treatment by serving as a biological and chemical oxidation basin
- erosion control by serving as a sedimentation area and filtering basin, absorbing silt and organic matter

Staff incorporated information from the National Wetlands Inventory (U.S. Fish and Wildlife Service) maps to identify where wetland resources are located in Genesee County. Projects that impact a wetland may need a wetland permit from the state or local government. However, there are some projects that are exempt from needing a state permit. Section 324.30305 (k) of Part 303, as amended, states:

The following uses are allowed in a wetland without a permit subject to other laws of this state and the owner's regulation:

- *"(k) Maintenance or improvement of public streets, highways, or roads, within the right-of-way and in such a manner as to assure that any adverse effect on the wetland will be otherwise minimized. Maintenance or improvement does not include adding extra lanes, increasing the*

*right-of-way, or deviating from the existing location of the street, highway, or road."*

However, the Michigan Department of Environmental Quality's (MDEQ) interpretation of this exemption is that any filling of wetlands beyond the road footprint would require a permit. Potential impacts on wetlands should be considered during the planning, design, construction and maintenance of projects. Wetlands are considered impacted if fill is added to the wetland, soil or minerals are dredged or removed from the wetland, polluted stormwater runoff enters a wetland, surface water is drained from the wetland, vegetation is removed, or if heavy equipment is placed in the wetland.

### Planning and Design Guidelines / Mitigation Activities

- Identify the area of potential impact related to the project. Conduct an inventory to determine if any wetlands could be impacted by the project.
- If possible, avoid impacts to wetlands. Where impacts are unavoidable, mitigate them as much as possible, with the goal of replacing as fully as possible, the functions and public benefits of lost wetlands.

- Determine if a watershed management plan exists, and if so, work with watershed planners to remain consistent with the plan.
- Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to discuss wetlands protection. Communicate the agreed-upon wetlands preservation goals to everyone working on the project. Discuss with the local community any requirements for wetlands protection such as ordinances or a site plan review process.
- Integrate stormwater management into the site design. If possible, use low-impact development practices such as swales, rain gardens and native plantings. These help infiltrate stormwater into the ground. Avoid diverting stormwater directly into wetlands.

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing sensitivity of wetlands into plans, specifications, and estimates provided to construction contractors. Note the types of activities that are not permitted in wetlands.
- Confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Install construction flagging or fencing around wetlands to prevent encroachment.
- Avoid having heavy equipment in wetlands. Avoid traversing wetlands. Access roads should avoid wetlands whenever possible. If a crossing is necessary, confine it to a single location at the edge of the wetlands.
- Time construction activities to coincide with frozen conditions.
- Implement erosion control practices to capture sediments and control runoff before site disturbance occurs
    - Minimize the extent and duration of exposed bare ground to prevent erosion
    - Establish permanent vegetative cover immediately after grading is complete
    - Do not stockpile materials within sensitive areas
    - Employ erosion control techniques
    - Prevent tracking of sediment onto paved surfaces
- Excavate only what is absolutely necessary to meet engineering requirements. Do not put excavated material in wetlands. (Excavated material could be used in other areas of the site to improve seeding success.)
    - Properly handle, store, and dispose of hazardous materials such as paint, solvents, epoxy, etc. and utilize less hazardous materials when possible. Use spill control and clean-up practices for leaks and spills of oil, fuel or hazardous materials. Utilize dry clean-up methods such as absorbents if possible. Never let a spill enter wetlands.
- Keep equipment in good working order and leak-free. Avoid equipment maintenance or fueling near wetlands. If fueling on site is required, keep a spill kit on the fuel truck. Avoid hosing down construction equipment on the site, unless the water is contained.
- Identify and implement salt management techniques to reduce the impacts of salt on groundwater.
- Use integrated pest management techniques if using pesticides during maintenance operations.
- Conduct on-site monitoring during construction to ensure that wetlands are protected as planned.

## Floodplains

A river, lake, stream or drain may now and then overflow into the surrounding banks and inundate adjoining areas with flood water. The land that is inundated with the flood water is defined as a floodplain. The term "floodplain" has come to mean the land area that will be inundated by the overflow of water resulting from a 100-year flood (a flood which has a 1% chance of occurring in any given year—NOT a flood which occurs once every hundred years).

The spreading of floodwaters into the floodplain helps reduce the amount of property damage caused by the flood. Many communities now wisely choose to put parks or other low-intensity land uses along floodplains. Using the floodplain also has a major impact on protecting water quality, maintaining fish and wildlife habitat, and accessing water-related recreation. Potential impacts to floodplains should be considered in the planning, design, construction, and maintenance of projects. Floodplains are considered impacted if fill is added, vegetation is removed, or heavy equipment is placed in the floodplain. Staff incorporated information from the Flood Insurance Rate Maps (FIRMs) produced by the Federal Emergency Management Administration (FEMA) to identify where floodplains are located in Genesee County.

### Planning and Design Guidelines / Mitigation Activities

- Identify the area of potential impact related to the project. Conduct an inventory to determine if any floodplains could be impacted by the project.
- If possible, avoid impacts to floodplains. Where impacts are unavoidable, mitigate them as much as possible.
- Determine if a watershed management plan exists, and if so, work with watershed planners to remain consistent with the plan.
- Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to discuss floodplain

protection. Communicate the agreed-upon floodplain preservation goals to everyone working on the project. Discuss with the local community any requirements for floodplain areas such as ordinances or a site plan review process.

- Design the project to maintain natural drainage patterns and runoff rates if possible.

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing sensitivity of floodplains into plans, specifications, and estimates provided to construction contractors. Note the types of activities that are not permitted in floodplains.
- Confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Install construction flagging or fencing around floodplains to prevent encroachment.
- Implement erosion control practices to capture sediments and control runoff before site disturbance occurs
    - Minimize the extent and duration of exposed bare ground to prevent erosion
    - Establish permanent vegetative cover immediately after grading is complete
    - Do not stockpile materials within sensitive areas
    - Employ erosion control techniques
    - Prevent tracking of sediment onto paved surfaces
- Maintain as much riparian vegetation as possible. If riparian vegetation is damaged or removed during construction, replace it with native species as soon as possible.
- Utilize bioengineering techniques, where possible, to stabilize stream banks.
- Keep construction activities away from wildlife crossings and corridors where possible.
- Pay close attention to the possibility of uncovering archeological remains when using heavy equipment in the floodplain.
- Properly handle, store, and dispose of hazardous materials such as paint, solvents, epoxy, etc. and utilize less hazardous materials when possible. Use spill control and clean-up practices for leaks and spills of oil, fuel or hazardous materials. Utilize dry clean-up methods such as absorbents if possible. Never let a spill enter waterways.
- Keep equipment in good working order and leak-free. Avoid equipment maintenance or fueling near sensitive areas. If fueling on site is required, keep a spill kit on the fuel truck. Avoid hosing down construction equipment on the site, unless the water is contained and does not reach waterways.
- Identify and implement salt management techniques to reduce the impacts of salt on area waterways.
- Use integrated pest management techniques if using pesticides during maintenance operations.
- Conduct on-site monitoring during construction to ensure that floodplains are protected as planned.

## Groundwater

An important part of protecting the health and welfare of Genesee County's citizens is the protection of our groundwater supplies. However, wildlife also depends on a fresh and abundant water supply for their needs. "Watering holes" used by many animals may actually be groundwater discharge areas. Also, businesses, industries and agriculture require high quality water for sustainable economic development. Tourism is an important Michigan economic activity, which demands high quality groundwater since it replenishes the streams, rivers and lakes which vacationers enjoy. It is projected that the Great Lakes Region's reliance on groundwater will increase with continued population shifts, development pressures and demands of a water dependent economy. Groundwater areas are defined to include wellhead protection areas and karst areas. Wellhead protection areas contribute water to the municipal water supply in the community. Karst areas are geologic formations that lead to sinkholes and provide direct lines of potential groundwater contamination in a community. Staff incorporated information from groundwater maps produced by the MDEQ to identify where groundwater resources are located in Genesee County. Potential impacts on groundwater should be considered in the planning, design, construction and maintenance of projects. Projects can impact groundwater when materials such as paint, solvent, fuel, etc., enter wellhead protection areas or karst areas.

### Planning and Design Guidelines / Mitigation Activities

- Identify the area of potential impact related to the project. Conduct an inventory of potential areas of groundwater contamination.
- Determine if a watershed management plan exists, and if so, work with watershed planners to remain consistent with the plan.
- Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to discuss groundwater protection. Communicate the agreed-upon groundwater preservation goals to everyone working on the project. Discuss with the local community any requirements for groundwater protection, such as ordinances or a site plan review process.
- Integrate stormwater management into the design of the site. Stormwater management systems should be designed to protect area groundwater supplies, such as draining away from critical groundwater recharge or karst areas.

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing sensitivity of groundwater areas into plans, specifications, and estimates provided to construction contractors. Note the types of activities that are not permitted in groundwater areas.
- Confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Install construction flagging or fencing around areas of potential groundwater contamination to prevent encroachment.
- Avoid parking or storing equipment near areas of potential groundwater contamination.
- Properly handle, store, and dispose of hazardous materials such as paint, solvents, epoxy, etc. and utilize less hazardous materials when possible. Use spill control and clean-up practices for leaks and spills of oil, fuel or hazardous materials. Utilize dry clean-up methods such as absorbents if possible. Never let a spill enter the storm drain system.
- Keep equipment in good working order and

leak-free. Avoid equipment maintenance or fueling near bodies of water. If fueling on site is required, keep a spill kit on the fuel truck. Avoid hosing down construction equipment on the site, particularly in areas prone to groundwater contamination.

- Identify and implement salt management techniques to reduce the impacts of salt on groundwater.
- Use integrated pest management techniques if using pesticides during maintenance operations.
- Conduct on-site monitoring during construction to ensure that groundwater areas are protected as planned.

## Woodlands

Michigan's woodlands are an asset that is abundant, diverse, healthy and productive. These woodlands provide a habitat for flora and fauna, recreational and sightseeing opportunities, filtration for air and water quality, and timber. These forests contribute greatly towards Michigan's quality of life. Economic benefits include jobs related to forest-based industries, tourism and recreation. The benefits of woodlands include:

- Providing recreational and aesthetic opportunities to local residents
- Providing habitat for wildlife and plant life
- Trees and plants absorb carbon from the atmosphere
- Stabilizing slopes and stream banks
- Reducing erosion and sedimentation
- Acting as a barrier to reduce noise
- Filtering water that percolates through the ground.

Staff incorporated information from their 2006 document "A Changing Landscape: Land Use Analysis and Trends" to help identify where woodlands are located in Genesee County. Potential impacts on woodlands should be considered in the planning, design, construction, and maintenance of projects. Woodlands are considered impacted if trees are removed, heavy equipment is utilized near woodlands, or polluted stormwater enters the woodlands.

### Planning and Design Guidelines / Mitigation Activities

- Identify the area of potential impact related to the project. Conduct an inventory of woodlands directly impacted by the project. Map the presence of any unique ecosystems and the location of large "landmark" trees.
- If possible, avoid impacts to woodlands. Where impacts are unavoidable, mitigate them as much as possible. Preserve as many trees and undisturbed woodlands as possible, paying particular attention to:
    - Protecting trees on sites with severe design limitations, such as steep slopes and highly erodible soils
    - Preserving trees along watercourses to prevent bank erosion, decrease stream temperature, and protect aquatic life
    - Preserving stands of trees instead of individual trees because groups of trees often tolerate construction disturbance better than individual trees.
- Determine if a watershed management plan exists, and if so, work with watershed planners to remain consistent with the plan.
- Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to discuss woodlands protection. Communicate the agreed-upon woodlands preservation goals to everyone working on the project. Discuss with the local community any requirements for woodlands protection, such as ordinances or a site plan review process.
- Integrate stormwater management into the design of the site. If appropriate, use low-impact development practices that infiltrate stormwater into the ground, such as swales, rain gardens and native plantings.

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing sensitivity of woodlands into plans, specifications, and estimates provided to construction contractors. Note the types of activities that are not permitted in woodlands.
- Confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Protect the tree and drip zone during construction. The drip zone is the area around the base of the tree that lies within the circumference of the crown and contains the majority of the tree's root system. Ideally, there should be no disturbance within the drip zone (e.g., no grading, digging, trenching, paving, or operating or parking heavy equipment and vehicles). In order to protect trees during construction, consider fencing or flagging around the drip zone at a minimum.
- Avoid trenching utilities through the tree's root zone, which is often much larger than the drip zone. Also avoid excavating or compacting the surrounding soil or applying chemicals or any material that might hinder the flow of water, air, or nutrients to the roots.
- Where possible, apply a two-to-four-inch layer of organic mulch (such as wood chips) over the root system. The mulch helps moderate soil temperatures, maintain moisture, and reduce competition from weeds.
- Avoid piling excavated soil around any tree.
- Based on the current condition of the tree and how much grading is going to occur around it, consider deep watering the tree prior to site activities.
- Limit paving within the root protection zone to pervious surfaces that allow air, water, and nutrients to reach the root zone.
- Replace trees removed during construction using native trees.
- Conduct on-site monitoring during construction to ensure that existing trees are protected as planned. Conduct post-construction monitoring to ensure that trees impacted by construction receive appropriate care.

## Parks and Recreation Areas

Preserving and enhancing local parks and recreation areas increases the quality of life for residents in local communities. Many communities have developed recreation plans with guidelines on acquiring, maintaining and enhancing parks and recreation areas consistent with identified community goals. Many parks and recreation areas include trails with mileage markers, playscapes, splashpads, pavilions, tennis courts, basketball courts, beach areas, bike trails, and boat launches. Additionally, wildlife corridors and nature preserves are included within this category. Potential impacts on these areas should be considered during the planning, design, construction, and maintenance of projects. Parks and recreation areas are considered impacted if

land is acquired for a project, if land is otherwise occupied (such as a retention basin) in a manner that is adverse to the recreational purpose of the land, or if a project in the proximity of the land substantially impacts its purpose. Staff incorporated information from their 2006 document "A Changing Landscape: Land Use Analysis and Trends" to help identify where parks and recreation areas are located in Genesee County.

- *Section 4(f) of the United States Department of Transportation Act of 1966 (subsequently codified into 49 United States Code Section 303) stipulates that federally funded transportation projects cannot use publicly-owned public parks or recreation areas unless there is no feasible and prudent alternative to the use of the land, and the action includes all possible planning to minimize harm resulting from the use. Where Section 4(f) resources are impacted, all associated federal requirements must be met during project planning and implementation.*

### Planning and Design Guidelines / Mitigation Activities

- Identify the area of potential impact related to the project. Conduct an inventory to determine if any parks or recreation areas could be impacted by the project.
- Determine if impacted parks and recreation areas are included in a community recreation plan; if so, coordinate with responsible community officials and remain consistent with the plan. If 4(f) resources are impacted, determine the possible impacts, explore alternatives to avoid or reduce impacts, and reach mitigation agreements with the appropriate agencies. Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to communicate the agreed-upon preservation goals to everyone working on the project.
- If possible, avoid impacts to parks and recreation areas. Where impacts are unavoidable, mitigate them as much as possible. For example:
  - Acquire the impacted property and compensate for its loss either monetarily or by acquiring replacement land.
  - Acquire scenic easements and construct appropriate visual screening consistent with the context of the recreational use.
  - Relocate, rehabilitate, or restore impacted features and context, including natural areas, such as vegetation, and facilities such as sidewalks, lighting, park benches, playground equipment, park structures, etc.
  - Preserve as much as possible, the resource and site features, including circulation systems, vegetation and landforms.
  - Avoid and mitigate new visual, atmospheric, and/or audible elements that detract from the character of the resource.

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing sensitivity of parks and recreation areas into plans, specifications, and estimates provided to construction contractors.
- Confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Install construction flagging or fencing around sensitive areas to prevent encroachment.
- Limit construction and maintenance activities to the off-season when public usage has decreased.
- Limit noise and vibrations, maintain proper drainage, and minimize disturbance of

  terrain and amenities by construction equipment. Replace disturbed terrain and amenities in-kind.
- Conduct on-site monitoring during construction to ensure that parks and recreation areas are protected as planned.

## Historic and Archeological Resources

Historic preservation is a vital aspect of our communities. It is a planning and economic development tool that allows local citizens to manage how they will grow and change. After historic sites are identified and registered, protection programs and tax incentives can be used to preserve them for future generations. Historic preservation enhances property values, revitalizes downtown areas, promotes tourism and helps small towns retain their unique character.

Historic sites are usually considered to be a building, structure, archeological site, district or object that is at least fifty years old and is either listed in or is eligible to be listed in the National Register of Historic Places (NRHP). There is a special category within the NRHP for historic resources of exceptional significance, called National Historic Landmarks (NHL). There are also historic resources listed in the State Register of Historic Sites (SRHS). The State Historic Preservation Office (SHPO) identifies, evaluates, registers, interprets and protects the state's historic resources. The SHPO administers the Michigan Historical Marker Program.

Historic preservation serves to protect cultural landscapes from uncontrolled development. Michigan's familiar green and gold Historical Markers help discourage some development projects by reminding decision-markers that the site is historically significant. In accordance with Public Act 488 of 2002, the owners of marked historic resources must follow certain guidelines when making changes to the resource in order to ensure that the historic character will be retained. If the standards are not followed and a loss of historic integrity results, the owner may be asked to return the marker.

The Office of the State Archaeologist (OSA) records, investigates, interprets and protects Michigan's archaeological sites. The OSA fulfills the archaeological functions required of the SHPO by the National Historic Preservation Act of 1966 (as amended). This work includes reviewing projects using federal or state assistance to assess possible impacts on archaeological resources.

Michigan land contains thousands of Native American settlements and burial sites, British and French outposts, old logging camps, mines, homesteads and shipwrecks. All these resources should be checked thoroughly for historic sites, and the search should include:

- A consultation with local units of government, tribal leaders, property owners, historical societies, historic district commissions, the SHPO, the OSA, the NRHP, and the SRHP.
- Background research at libraries, archives, and government offices such as the Register of Deeds.
- The services of a qualified historian, archeologist, or historic preservation

professional to conduct research, develop reports and make recommendations.

Michigan law states that police must be notified immediately if human remains are discovered during project construction. If the police investigation rules out a crime, the OSA shall be consulted to address the remains as an archaeological resource. If materials are found that point to the presence of an archaeological site (such as coins, pottery, arrowheads, tools, etc.), construction should cease in the area of the discovery until OSA is consulted.

Potential impacts on historic resources should be considered during the planning, design, construction, and maintenance of projects. A historic resource is considered impacted if the resource and/or its site features are damaged, relocated, or destroyed; altered inconsistently with preservation standards; exposed to incompatible visual, atmospheric, or audible elements, or neglected. Staff incorporated information from the SHPO to help identify where historic and archaeological areas are located in Genesee County.

### Planning and Design Guidelines / Mitigation Activities

- Identify the area of potential impact related to the project. Conduct an inventory to determine if any historic or archaeological resources could be impacted by the project. Work with the SHPO and the Michigan Department of Transportation (MDOT) to determine possible impacts, explore alternatives to reduce or avoid impacts, and reach mitigation agreements as appropriate.
- Determine if preservation plans exist and, if so, coordinate with preservation planners and remain consistent with the plan. Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to communicate the agreed-upon preservation goals to everyone working on the project.
- If possible, avoid impacts to historic or archaeological resources. Where impacts are unavoidable, mitigate them.
    - Preserve the relationship between the resource and adjacent historic buildings/features.
    - Acquire scenic easements and construct appropriate scenic buffers consistent with the historic context of the resource.
    - For sites open to the public, develop an appropriate adaptive use of historic buildings and sites, maintain non-motorized access to the resource, and provide appropriate interpretive signage.
    - Rehabilitate or restore impacted resources and context
    - Preserve to the extent possible the resource and site features, including circulation systems, vegetation, landforms, furnishings, decorative elements, and water features.
    - Avoid or mitigate new visual, atmospheric, and/or audible elements that detract from the historic character.
    - If necessary, move the resource while maintaining structural integrity and historic qualities.
    - If the resource must be demolished:
    - Record and document all aspects of the resource and site according to applicable guidelines. Provide copies of documentation to the SHPO, Archives of Michigan, and/or appropriate local or regional repository.
    - Utilize partial recovery or salvage of materials to the extent possible.
    - Compensate for destruction, either monetarily or by replacing or substituting for the resource. (e.g., arrange to sponsor an exhibit or program with a local historical society or historic district commission, provide funding for historic preservation activities in a community, or assist in website development for a non-profit historic preservation organization or program.)

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing sensitivity of historic and archaeological resources into plans, specifications, and estimates provided to construction contractors.
- Confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Install construction flagging or fencing around sensitive areas, including the historic resource itself and related features (such as landscaping), to prevent encroachment.
- Limit construction and maintenance activities to the off-season when public usage has decreased (for resources open to the public).
- Limit noise and vibrations, maintain proper drainage, and minimize disturbance of terrain and amenities by construction equipment. Replace disturbed terrain and amenities in-kind.
- Conduct on-site monitoring during construction to ensure that historic and archaeological resource areas are protected as planned.

## Cemeteries and Burial Grounds

State laws and local ordinances govern the establishment and maintenance of cemeteries. However, cemeteries and burial grounds are threatened by development, neglect and abandonment. Many historic burial grounds have been lost by being inadvertently destroyed or buried by development or by being disinterred and moved. Some historic burial grounds have remained intact but go undocumented and are therefore unknown and unprotected. The preservation of cemeteries and burial grounds, both historic and contemporary, reflects society's respect for their religious, historic, sacred and artistic significance. Staff incorporated information from their 2006 document "A Changing Landscape: Land Use Analysis and Trends" to help identify were cemeteries are located in Genesee County.

### Planning and Design Guidelines / Mitigation Activities

- Identify the area of potential impact related to the project. Conduct an inventory to determine if any cemeteries or burial grounds could be impacted by the project. Work with the OSA, local health department, and/or resource owners to determine possible impacts, explore alternatives to reduce or avoid impacts, and reach mitigation agreements as appropriate.
- Determine if cemetery and burial ground preservation plans exist and, if so, coordinate with preservation planners and

remain consistent with the plan. Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to communicate the agreed-upon preservation goals to everyone working on the project.

- If possible, avoid impacts to cemeteries and burial grounds. Where impacts are unavoidable, mitigate them as much as possible. For example:
  - Acquire scenic easements and construct appropriate scenic buffers consistent with the context of the cemetery or burial ground.
  - Rehabilitate or restore impacted features and context
  - Preserve to the extent possible the resource and site features, including circulation systems, vegetation, and landforms.
  - Avoid or mitigate new visual, atmospheric, and/or audible elements that detract from the character of the resource.
  - Where necessary, compensate for impacts.
    - If disinterment is required, applicable state laws and local ordinances must be followed regarding proper re-interment. Requirements for recordation and documentation of the cemetery must also be followed.

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing sensitivity of cemeteries and burial grounds into plans, specifications, and estimates provided to construction contractors.
- Confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Where the cemetery or burial ground is not clearly demarcated, install construction flagging or fencing around the burial plots and related features (such as landscaping), to prevent encroachment.
- Limit noise and vibrations, maintain proper drainage, and minimize disturbance of terrain and amenities by construction equipment. Replace disturbed terrain and amenities in-kind.
- Conduct on-site monitoring to ensure that cemeteries and burial grounds are protected as planned.

## Heritage Routes and Natural Beauty Roads

The Heritage Route Program is designed to identify, preserve, and enhance Michigan's scenic, historic and recreational resources, promote a greater awareness of and appreciation for those resources, and provide an opportunity for growth management within a corridor by encouraging appropriate development. When a road is designated as a Heritage Route or a Natural Beauty Road, the entire context of the road is taken into account. This includes surrounding landscapes, historic architecture, near-by activities and attractions, all of which lend character to the identified Heritage Route. There are three categories of heritage routes: **scenic** - a state highway having outstanding natural beauty; **historic** - a state highway having outstanding historic buildings, and resources along its length.; and **recreational** - maintained not only to serve the recreational driver, but also to capture that recreational setting of the facility or area itself, and set the mood for the recreational experience. These routes provide numerous benefits to the local community, such as attracting visitors and new businesses, and preserving the uniqueness of the local area. Genesee County has M-15 (State Road) which is a designated Recreational Heritage Route.

The Natural Beauty Roads Program has guidelines that lets citizens petition for a road to become a Natural Beauty Road. The goals of this program are to identify and preserve in a natural, essentially undisturbed condition, certain county-local roads having unusual or outstanding natural beauty by virtue of native vegetation or other natural features within or associated with the right-of-way, for the use and enjoyment of local residents and the public in general. Genesee County has no designated Natural Beauty Roads at the time of this writing (August 2019).

Potential impacts on Heritage Routes and Natural Beauty Roads should be considered during the planning, design, construction, and maintenance of projects. This includes projects directly related to the designated roads themselves as well as other types of projects in the vicinity of the designated roads. A Heritage Route or Natural Beauty Road is considered impacted if the roadway, right-of-way, or setting is altered in such a way as to degrade the characteristics that led to the designation. This can include physical realignment or reconstruction of the roadway, destruction or reconfiguration of significant structures or habitat in the roadway viewshed, and significant deviation from the original use of the roadway.

### Planning and Design Guidelines / Mitigation Activities

- Identify the area of potential impact related to the project. Conduct an inventory to determine if any Heritage Routes or Natural Beauty Roads could be impacted by the project.
- Designated Heritage Routes are required to have a corridor management plan. Consult these plans, along with any existing preservation/planning organizations associated with the designated routes, before and during the planning and design process to ensure that activities are in keeping with the nature of the designation.
- Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to communicate the agreed-upon corridor management goals to everyone working on the project.
- Consider all aspects of the roadway environment in the design process, including adjacent viewsheds, structures, habitat and activity centers.
- If possible, avoid impacts to Heritage Routes and Natural Beauty Roads. Where impacts to significant roadway or context features are unavoidable, mitigate them as much as possible. For example:
  - Rehabilitate or restore impacted elements while retaining the original design, materials, and workmanship.
  - Replace in-kind any damaged plant life or other aesthetic elements within the construction impact area.
  - Maintain the integrity of historic structures within the construction impact area. (See the “Historic and Archaeological Resources” and “Historic Bridges” sections for additional information.)

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing

coordination with the corridor management plan into specifications and estimates provided to construction contractors.
- Confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Limit noise and vibrations, maintain proper drainage, and minimize disturbance of terrain and amenities by construction equipment. Replace disturbed terrain and amenities in-kind.
- For Natural Beauty Roads, continue routine road maintenance while not disturbing the natural character of the roadway and adjacent areas. For example:
  - Limit mowing to a maximum of five feet from the road surface.
  - Minimize grading width.
  - Do not use herbicides to control or eliminate roadside vegetation.
  - Minimize dust laying.
  - Limit tree/shrub trimming and removal to the extent needed for safety.
  - Continue routine pavement maintenance but without deviating from the original design of the roadway.
- Conduct on-site monitoring during construction to ensure that the corridor management plan is being followed properly.

## Historic Bridges

Bridges have always held a place of importance to transportation and economic development. Bridges make it possible to draw communities together and overcome natural barriers such as rivers and man-made barriers such as canals or roads. Bridge design and construction also marked the evolution of important developments in structural engineering and technology. Historic bridges are often associated with significant events, people, artistic values, craftsmanship, or construction techniques. Preserving the historic bridges also preserves these aspects of the past for generations to come, and retains a feeling of uniqueness in the community. Genesee County has four historic bridges which are: the West Second Street Bridge over Swartz Creek, the Beach/Garland Street Bridge over the Flint River, the overpass at Fourteenth Street and Saginaw Street, and the Chevrolet Avenue Bridge over the Flint River.

Potential impacts to historic bridges should be considered during the planning, design, construction and maintenance of transportation projects. This includes projects related to the bridges themselves as well as other types of projects in the vicinity of historic bridges. Historic bridges are considered impacted if historic material or distinctive engineering/architectural elements are concealed, removed, damaged, or altered inconsistent with preservation standards; if the structure is neglected, closed or relocated; or if significant archaeological, cultural, or environmental resources adjacent to the bridge are damaged or altered.

### Planning and Design Guidelines / Mitigation Activities

- Identify the area of potential impact related to the transportation project. Conduct an inventory of bridges and their adjacent features to identify the location and condition of historic bridges that could be impacted by the project. Consult appropriate data inventories to determine properties on or eligible for the NRHP. Work with the SHPO and MDOT to determine possible impacts, explore alternatives to avoid or reduce impacts, and reach mitigation agreements.
- Determine if a bridge preservation plan exists and, if so, coordinate with preservation planners and remain consistent with the plan. Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to communicate the agreed-upon preservation goals to everyone working on the project.
- If possible, avoid impacts to historic bridges. Where impacts are unavoidable, mitigate them as much as possible. For example:
  - Maintain the bridge in its original location and use, for example, carrying vehicular traffic.
  - Maintain the bridge in its original location but impose necessary weight or use restrictions to ensure structural integrity and safety for vehicular traffic.
  - Maintain the bridge in its original location with the addition of a parallel bypass span that is consistent with the historic context of the existing bridge.
  - Selectively rehabilitate the bridge while protecting historic design, materials, and workmanship.
  - If necessary, undertake major reconstruction while retaining consistency with original design, color, texture, and visual qualities.
  - Preserve significant archaeological, cultural, and environmental resources adjacent to the bridge.
- If the bridge cannot be maintained in its original location:
  - Retain the physical structure of the bridge at an alternate location where vehicular traffic can be more appropriately maintained.
  - Close the bridge to vehicular traffic and convert it to an alternate use (either on-site or at an alternate location), such as a non-motorized facility, historic monument, architectural adaptation, fishing pier, or recreational viewing platform.
  - Consider transfer of ownership to a preservation/adaptive use program. Conduct a public education and awareness campaign to solicit appropriate entities for receipt of the bridge.
- If demolition is unavoidable:
  - Adequately record and document the bridge and its site context; dismantle and salvage as much material as possible for display, research, and/or re-use.
  - Replace the bridge with another compatible in size, scale, visual quality, and character. This is particularly important in historic districts where other related historic elements are present.

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing sensitivity of historic bridges and adjacent features into specifications and estimates provided to construction contractors.
- Confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Avoid maintenance techniques (such as

sandblasting and salting ) that can damage historic materials.

- Limit noise and vibrations, maintain proper drainage, and minimize disturbance of adjacent terrain and amenities by construction equipment. Replace disturbed terrain and amenities in-kind.
- Conduct on-site monitoring to ensure that historic bridges are being properly protected.
- Conduct routine post-construction monitoring of cumulative/residual impacts on historic bridges. For example, monitor traffic flow and usage to ensure that the structural integrity of the bridge is maintained.

## Non-Motorized Facilities

Communities today are actively working towards a connected system of non-motorized facilities because of all the benefits these systems provide. For example, residents can use these non-motorized facilities to get to local destinations without a car, improve their health by increased physical activity, save money on gas, plan social outings, connect with their communities, and just enjoy their natural surroundings. Non-motorized facilities include off-road walking and biking trails, on-road bicycle lanes, paved shoulders and sidewalks. These non-motorized facilities often take advantage of the surrounding natural resources.

Potential impacts to non-motorized facilities should be considered during the planning, design, construction, and maintenance of projects. Non-motorized facilities are considered impacted if they are removed, if travel patterns are changed to the detriment of pedestrian/bicyclist safety, of if existing non-motorized pathways are bisected (e.g., by a bridge not accessible to non-vehicular traffic) thereby reducing connectivity along the pathway or between destinations. Staff incorporated information from their 2019 Regional Non-Motorized Transportation Priorities Map, to identify where non-motorized facilities are located in Genesee County.

### Planning and Design Guidelines / Mitigation Activities

- Determine if the local community has a community master plan or recreation plan addressing non-motorized activities; if so, work with community officials and remain consistent with the plan, including any plans to develop non-motorized facilities in the future. Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to communicate the agreed-upon non-motorized goals to everyone working on the project.
- Coordinate non-motorized planning activities with the transit system to ensure adequate connectivity between transit and non-motorized systems and facilities. (An example of this would be continuous sidewalks leading to Americans with Disabilities Act (ADA)-compliant bus pads.)
- If possible, avoid impacts to non-motorized facilities. Where impacts are unavoidable, mitigate them as much as possible. For example:
  - Acquire scenic easements and construct appropriate visual screening consistent with the context of the facility.
  - Relocate, rehabilitate, or restore impacted features and context, including natural areas such as vegetation, and amenities such as lighting and benches.
  - Realign or replace facilities as necessary to retain system connectivity
  - Avoid or mitigate new visual, atmospheric, and/or audible elements that detract from the character of the facility.
- Incorporate on-road pedestrian and bicyclist-friendly design elements into the project. For example:
  - Construct and/or maintain sidewalks, paved roadway shoulders, and/or bicycle lanes as appropriate based on the intended roadway usage and adjacent development patterns.
  - Use traffic calming and access management techniques to limit conflicts between travel modes.
  - Design traffic signal control features based on expected pedestrian/bicycle volumes. Consider pedestrian/bicyclist-actuated signals and ensure adequate pedestrian crossing time.
  - Design convenient and safe mid-block crossings for pedestrians at regular intervals. Clearly mark pedestrian crosswalks.
  - Incorporate ADA-approved curb ramps into all new construction and as part of repair/improvement projects.
  - Provide bicycle-safe drainage grates and railroad crossings.
  - Utilize industry standards for non-motorized facility design based on state and federal recommendations for safety.
  - Install pedestrian and bicyclist amenities wherever possible, such as benches, shade trees, lighting, and bicycle stands.
  - Consider adding medians to make wide streets narrower, which helps calm traffic and provides a refuge for pedestrians and bicyclists as they cross the street.
  - Use buffering between streets and non-motorized facilities.
  - Provide way-finding signage to maximize the use and benefit of the system.

### Construction and Maintenance Guidelines / Mitigation Activities

- Insert special requirements addressing sensitivity of non-motorized facilities into plans, specifications and estimates provided to construction contractors.
- Particularly where off-road non-motorized facilities are present, confine construction and staging areas to the smallest necessary area and clearly mark its boundaries. Confine all construction activity and storage of materials to designated areas.
- Limit construction and maintenance activities to the off-season when public usage is minimized
- Limit noise and vibrations, maintain proper drainage, and minimize disturbance of terrain and amenities by construction equipment. Replace disturbed terrain and amenities in-kind.
- Maintain proper signage during construction, particularly if pedestrian crosswalks are impacted. Provide alternative walkways and crossings as necessary.
- Properly maintain pavement markings during and after construction.
- Conduct on-site monitoring to ensure that non-motorized facilities are being protected as planned.

## Traffic Noise

Highway traffic noise is an important issue for communities across the nation as well as in Genesee County. If not properly addressed, highway noise can disrupt our daily routines by interrupting sleep, recreational activities, and even our conversations. Local planners, developers, and residents attend numerous meetings and spend many hours considering methods to address existing or anticipated noise from nearby roads. While this would not normally be considered a "sensitive area", often new developments built near or along highways with larger traffic volumes can become sensitive areas. Potential traffic noise is important for transportation planners to consider when planning new roadways or capacity increases, as well as developers and local officials when citing new developments.

- Advocate noise compatible land use options to developers.
- Educate elected officials and community residents about noise compatible land use planning
- Enhance zoning or other legal measures that encourage noise compatible land use planning.
- Include municipal land use or easement purchases as an active strategy to promote noise compatible land use planning.

## Migratory Birds

Under the Migratory Bird Treaty Act of 1918, as amended, it is unlawful to take, capture, kill, or possess migratory birds, their nests, eggs, and young. Potential impacts to migratory birds and their habitat should be considered during the planning, design, construction, and maintenance of all projects.

- For proposed projects that may contain habitat suitable for nesting by migratory bird species, we recommend you schedule construction activities of remove potential habitat or nesting structures before the initiation of spring nesting or after the breeding season has ended to avoid the taking of migratory birds, eggs, young, and/or active nests.
- In migratory birds are known to nest on any of the bridge structures proposed for replacement, construction should begin before the initiation of the breeding season for those species of after breeding has concluded. Alternatively, the structures can be screened before the breeding season to prevent nesting.
- Generally, the U.S. Fish & Wildlife Service recommends that screening or any other habitat disturbance occur before April 15 or after August 1 to minimize potential impacts to migratory birds, but please be aware that some species may initiate nesting before April 15.

## Preserved Farmland and Open Space

Authorized by Michigan Public Act 116, The Michigan Department of Agriculture preserves farmland and open space through agreements that restrict development and provides tax incentives for program participants. Road agencies should review the locations of parcels protected under P.A. 116 to assess whether or not an impact will occur. For planning and design guidelines/mitigation activities it is recommended that the road agency seek consultation from the Michigan Department of Agriculture and Michigan Department of Transportation.

## Hazardous Sites

Hazardous materials incidents at fixed sites are ranked as the number eight hazard in Genesee County according to the Region V Hazard Mitigation Plan. Road agencies should review the locations of known hazardous and potentially hazardous sites while preparing for an expansion project and seek planning and design guidelines/mitigation activities from the State Emergency Response Commission (SERC) and the Local Emergency Management Office.