

The inadvertent loss of nesting birds in the construction area and bat roosting/nurseries in cavity trees, particularly south of Sunset Drive, will be avoided by imposing a tree clearing restriction. Tree removal would not be allowed between April 15 and August 15 of any given year. Potential mitigation measures for marsh and grassland nesting birds and bats roosting under the County X bridge will be assessed during design.

During design, Waukesha County and WisDOT will evaluate the feasibility of medians that do not trap wildlife. Two-foot-wide openings in the barrier would allow small animals to cross through. Waukesha County and WisDOT also will consider the feasibility of acquiring and preserving remnant parcels between rights-of-way and natural areas to increase the wildlife habitat within the corridor.

Bridges over Pebble Creek would be designed to allow wildlife and herptiles (a reptile or amphibian) to pass under them. The clearance under the bridges would vary. The bridge over Pebble Creek at County TT would be high enough to let all wildlife pass under. Under the Pebble Creek Alternatives, a land bridge would be built over a wetland south of Sunset Drive. This would allow herptiles and small wildlife to pass under the roadway. Similarly, under the Sunset-to-County X Alternative, the bridge over Pebble Creek would be lengthened, which would make it easier for herptiles and small wildlife to pass under the bridge. See Ecopassages in Section 3.19.3.

## 3.19 Threatened and Endangered Species

### 3.19.1 Affected Environment

Information on threatened and endangered species that are or may be present in the West Waukesha Bypass study area was obtained from the U.S. Department of the Interior Fish and Wildlife Service (USFWS) website, DNR, SEWRPC, and Great Lakes Ecological Services, which conducted a review of rare reptiles for the project under contract to Waukesha County. Waukesha County also had its biologist do a field survey in July 2013. The field survey located one state listed species, the seaside crowfoot that was identified by SEWRPC while delineating wetlands south of the Wisconsin & Southern Railroad.

#### Federal Listed Species

The USFWS defines endangered species as those that are in danger of becoming extinct and threatened species as those likely to become endangered in the foreseeable future.

According to the USFWS website, Waukesha County may provide habitat for the Northern Long-eared Bat (*Myotis septentrionalis*) and Poweshiek skipperling (*Oarisma poweshiek*), a small moth-like butterfly. Both species are proposed for listing by the USFWS as endangered (USFWS 2014). Because the Poweshiek skipperling inhabits high quality tall-grass prairies, it is unlikely that the species would be present in the area of potential effect for the West Waukesha Bypass Build Alternatives. In May 2014, Waukesha County sent maps to the USFWS office in New Franken, WI to help the agency determine whether the project had the potential to adversely affect the Poweshiek skipperling. On May 19, 2014 the USFWS responded that the project would have no impact on the species. See Appendix C, page C57.

The USFWS website also lists the eastern prairie fringed orchid (*Platanthera leucophaea*), a

threatened plant, as possibly being present in Waukesha County. The species, called prairie white-fringed orchid by DNR, is a state listed endangered species. See State Listed Species for more information.

Because of changes that could occur in the species list over time, the USFWS typically recommends that the most current list be reviewed if there is a lag time of more than 6 months between the project's planning and construction phases. The list was reviewed in May 2014.

### State Listed Species

At the state level, endangered species are those whose continued existence as a viable component of the state's wild animals or wild plants is determined by DNR to be in jeopardy on the basis of scientific evidence. Threatened species are those likely to become endangered in the foreseeable future based on scientific evidence (Section 20.604, Wisconsin Statutes). In May 2010, the DNR Southeast Region office provided an initial list of threatened and endangered species potentially occurring in the West Waukesha Bypass study area. (See Appendix B, page B15)

In May 2012, the DNR Endangered Resources Program provided an updated list based on current data from the National Heritage Inventory (NHI<sup>9</sup>) program and information from SEWRPC on the seaside crowfoot (threatened plant). (See Appendix B, page B17)

In April 2014, a representative from the DNR Endangered Resources Program notified Waukesha County that effective January 2014, the Butler's garter snake, Blanding's turtle, Prairie Indian plantain and Yellow gentian were delisted from state threatened status and are now listed as species of special concern. ([http://dnr.wi.gov/topic/endangeredresources/documents/Species-Proposed\\_Delist\\_chart.pdf](http://dnr.wi.gov/topic/endangeredresources/documents/Species-Proposed_Delist_chart.pdf) accessed May 2014)

DNR also maintains a category of special concern species, about which some problem of abundance or distribution is suspected but not yet proven. The main purpose of this category is to focus attention on certain species before they become threatened or endangered. Special concern species occurring or possibly occurring in the West Waukesha Bypass study area are listed in the letters from the DNR in Appendix B. As noted above, the Butler's garter snake and Blanding's turtle are now considered species of special concern.

The focus of the impact evaluation for the West Waukesha Bypass study is on the following state threatened and endangered species that have been identified as occurring or possibly occurring in the West Waukesha Bypass study area. Specific locations of threatened and endangered species are withheld at DNR's request.

### Mammals

- Little brown bat (*Myotis lucifugus*)—Threatened. Identified under a bridge during previous field work in the study area. Waukesha County did not observe the bat under the Sunset Drive bridge over Pebble Creek or the County TT bridge over Pebble Creek, but it is possible that the bat uses these bridges. The bats hibernate in caves and mines in the winter.

<sup>9</sup> The NHI program is part of an international network for maintaining data on the locations and status of rare species, natural communities and natural features throughout Wisconsin and other states. Information for the NHI database comes from a variety of sources including statewide inventories, universities, federal and state agencies and published literature. The NHI "working list" provides an annual snapshot of what is being tracked in the database.

**Herptiles**

- Butler's gartersnake (*Thamnophis butleri*) – Delisted in January 2014. Formerly threatened.
- Blanding's turtle (*Emydoidea blandingii*) – Delisted in January 2014. Formerly threatened.

**Mussels and Fish**

- Slippershell mussel (*Alasmidonta viridis*) – Threatened.
- Ellipse mussel (*Venustachonca ellipsiformis*) – Threatened.
- Longear sunfish (*Lepomis megalotis*) – Threatened. Identified as occurring in Lower and Upper Pebble Creek during inventories for the *Pebble Creek Watershed Protection Plan*.

**Birds**

- Henslow's sparrow (*Ammodramus henslowii*) – Threatened. Identified as occurring adjacent to Lower and Upper Pebble Creek during inventories for the *Pebble Creek Watershed Protection Plan*.

**Plants**

- Purple milkweed (*Asclepias purpurascens*) – Endangered.
- Wild hyacinth (*Camassia scilloides*) – Endangered.
- False hop sedge (*Carex lupuliformis*) – Endangered.
- Prairie white-fringed orchid (*Plantanthera leucophaea*) – Endangered. Also a federal listed threatened species (called eastern prairie fringed orchid by the USFWS). SEWRPC lists it as occurring in the Pebble Creek watershed (*Pebble Creek Watershed Protection Plan*).
- Rough rattlesnake root (*Prenanthes aspera*) – Endangered.
- Hairy wild petunia (*Ruellia humilis*) – Endangered.
- Kitten tails (*Besseyia bullii*) – Threatened.
- Prairie Indian plantain (*Cacalia tuberosa*) – Delisted in January 2014. Formerly threatened.
- Small white lady's slipper (*Cypripedium candidum*) – Threatened.
- Beaked spikerush (*Eleocharis rostellata*) – Threatened.
- Yellow gentian (*Gentiana alba*) – Delisted in January 2014. Formerly threatened.
- Seaside crowfoot (*Ranunculus cymbalaria*) – Threatened. Observed south of the Wisconsin & Southern Railroad by SEWRPC during wetland delineations and by Waukesha County (07/18/2013) for the West Waukesha Bypass study.
- Tufted club rush/bulrush (*Scirpus cespitosus*) – Threatened.
- Sticky false asphodel (*Tofieldia glutinosa*) – Threatened.
- Forked aster (*Aster furcatus*) – Threatened.

In April, 2012, Great Lakes Ecological Services, LLC (Gary S. Casper, Ph.D.) conducted a rare reptile review for the West Waukesha Bypass project. (The CD at the back of this EIS

contains the report Waukesha Bypass Herptile Report final.pdf). The purpose was to assist Waukesha County in evaluating impacts to critical habitat for the Blanding's turtle and Butler's gartersnake. The *Rare Reptile Review* (Casper 2012) states that based on data from the Wisconsin Herp Atlas project,<sup>10</sup> Blanding's turtles are known to occupy the Pebble Creek environmental corridor and can be assumed to also occupy the contiguous Fox River environmental corridor. The report notes that although surveys for the Butler's gartersnake have not been conducted in the West Waukesha Bypass project area, the species is known to occupy the area (Wisconsin Herp Atlas and DNR data). Suitable habitat in the project area is constrained by development and roadways, but high quality habitat exists where low lying and diverse grassland/shrub communities and numerous crayfish burrows provide summer refuge and winter den sites. Habitat is less suitable along the Fox River because of adjacent development, more woodland, and denser stands of reed canary grass and cattail that do not provide the preferred habitat diversity.

DNR developed the *Butler's Gartersnake Conservation Strategy* (DNR 2005) in March 2005 in partnership with specialists in Butler's gartersnake biology, landscape ecology and ecological planning. Habitat for the species in southeast Wisconsin has been categorized into three tiers based on site size and quality. Tier 3 sites could support large populations and are critical to the long-term conservation of the species. Based on the data available, the loss of a population at a Tier 3 site would jeopardize the status of this species.

There is a large block of Tier 3 habitat in the study area.

The *Conservation Strategy* (DNR 2005) calls for taking of the species to be avoided at Tier 3 sites, except in the case of habitat management. If 'taking'<sup>11</sup> beyond that necessary for habitat management is proposed, project-specific "Incidental Take Authorization" is required from DNR in accordance with Wisconsin's endangered species law (Section 29.604, Wisconsin Statutes). Incidental Take Authorization allows the taking of a protected species if the taking is not for the purpose of but is incidental to carrying out an otherwise lawful activity.

For Tier 3 sites, all suitable habitat must either be maintained or the equivalent of any lost suitable habitat must be restored elsewhere within the habitat patch so there is no net loss. DNR evaluates all habitat patch mitigation plans in accordance with the *Conservation Strategy*, including whether an incidental take should be authorized.

### Other Protected Species

The *Migratory Bird Treaty Act of 1918* states that, unless permitted by regulation, it is unlawful to kill or capture migratory birds or to destroy their eggs and nests. Migratory birds include barn swallows, which commonly use the undersides of highway bridge decks and bridge abutments for nesting. Based on field observations for the West Waukesha Bypass study, there are no swallow nests on the County TT or Sunset Drive bridges over Pebble Creek, but there are nests on the County X bridge over Pebble Creek. If future inventories indicate that swallows continue to nest at the County X bridge or begin nesting at the other bridges, the

<sup>10</sup> The Herp Atlas project was initiated in 1986 by the Milwaukee Public Museum with support from the DNR and the Wisconsin Chapter of the Nature Conservancy. It is a database of amphibian and reptile distribution based on records obtained from museum collections, field surveys, literature, and field notes provided by volunteer observers.

<sup>11</sup> From Section 3(18) of the Federal Endangered Species Act: "The term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

nests may not be disturbed between May 1 and August 30 of the construction year. If construction would conflict with the nesting period, measures for avoiding impacts or preventing swallows from nesting on the structures would be implemented. Typical measures include the following:

- Demolition of existing structures would occur outside the nesting season (May 1 to August 30 of the construction year) or could take place during the nesting season if a depredation permit is obtained from the USFWS.
- Removal of nests before the nesting season or other means to prevent nesting such as placement of netting on the structure before nests can be established.

### **3.19.2 Threatened and Endangered Species Impacts**

The No Build Alternative would not affect threatened or endangered species. Potential impacts of the build alternatives are discussed below for the identified threatened or endangered species.

#### **Mammals**

The little brown bat uses a study-area bridge as a roosting site from mid-May through mid-September. The bridge, and thus the roosting site, would be removed and unavailable until the new bridge is constructed. DNR Bureau of Endangered Resources stated that they see no long-term impact to the bat as a result of the project after construction is completed. (See notes from March 5, 2013 meeting with DNR in Appendix C, page C61.)

#### **Herptiles**

With the delisting of the Butler's garter snake and the Blanding's turtle, the proposed project would not affect state protected herptiles. However, as special concern species, the DNR will monitor Butler's garter snake and Blandings turtles to ensure their numbers are adequate with the delisting. For that reason, this section compares the impacts of the Build Alternatives on the Butler's garter snake and the Blanding's turtle.

According to the *Rare Reptile Review* (Casper 2012) report, the Pebble Creek West and Pebble Creek Far West Alternatives would have less overall impact than the Sunset-to-County X Alternative on habitat for the Butler's gartersnake and Blanding's turtle.

Constructing a new roadway under the Pebble Creek Alternatives would constrain the western extent of the contiguous habitat between the Wisconsin & Southern Railroad and WIS 59 by disconnecting part of the upland habitat areas on the western slope from the stream valley habitat. Blanding's turtle can move considerable distances between terrestrial foraging areas in woodlands and meadows during mid- to late-summer. Roads can compromise turtle movements between these habitat components and those used for nesting. A new roadway could alter groundwater flow and contribute runoff to adjacent wetlands. According to the *Rare Reptile Review* (Casper 2012) report, the Pebble Creek Alternatives are expected to contribute to further reductions in overall species diversity in the Pebble Creek valley habitat patch by increasing isolation and decreasing habitat area.

Widening Sunset Drive under the Sunset-to-County X Alternative could discharge road runoff into adjacent wetlands and Pebble Creek, reduce and degrade available habitat, and

create an expanded roadway barrier to wildlife movement in spite of the proposed longer bridge over Pebble Creek. Alterations to groundwater flow could affect floodplain vegetation communities and species such as the Butler's gartersnake that depend on the water table for parts of their life cycles.

The single Build Alternative north of the railroad would affect 2.7 acres of Tier 3 habitat. South of the railroad, the Pebble Creek West Alternative would affect 7.8 acres of Tier 3 habitat compared to 5.5 acres for the Pebble Creek Far West Alternative. The Sunset-to-County X Alternative would affect 3.9 acres of Tier 3 habitat. There are 1,230 acres of Butler's garter snake habitat in the cumulative effects study area. Of that, 1,161 acres is Tier 3 habitat.

### Mussels and Fish

As discussed in Section 3.12.6, reconstructing and widening County TT north of the Wisconsin & Southern Railroad would involve the following:

- Extending the concrete culvert south of Northview Road that carries an unnamed tributary of Pebble Creek under County TT (proposed extension on west side of County TT)
- Extending three concrete culverts north of Summit Avenue that carry Upper Pebble Creek under County TT (proposed extension on west side of County TT)
- Extending the metal culvert pipe south of Madison Street that carries an unnamed tributary of Pebble Creek under County TT (proposed extension on west side of County TT)
- Constructing a new 4-lane bridge that would span Pebble Creek

South of the Wisconsin & Southern Railroad, neither the Pebble Creek West nor the Pebble Creek Far West Alternatives would cross Pebble Creek or its tributaries, but both alternatives would replace the 2-lane single-span bridge that carries County X over Pebble Creek with a 4-lane single-span bridge.<sup>12</sup>

The Sunset-to-County X Alternative would involve the following:

- Replacing the 2-lane single-span bridge that carries Sunset Drive over Pebble Creek with a 4-lane single-span bridge
- Replacing the 2-lane single-span bridge that carries County X over Pebble Creek with a 4-lane single-span bridge

According to DNR's endangered resources website, the slippershell mussel inhabits small streams and headwaters and is usually found buried in sand or fine gravel in shallow water. The ellipse mussel inhabits small to medium size streams with good current, shallow water and sand or gravel bottoms. Based on field observations, the locations where culvert extensions are proposed do not provide these conditions, and so it is unlikely that the mussels would be present at these locations. Stream conditions at the Upper and Lower Pebble Creek crossing locations may be suitable for the mussels. The Upper Pebble Creek crossing, which would extend the three pipes under County TT to the west, could affect mussel habitat. However, no impacts would be expected to occur at the Sunset Drive or County X bridges over Pebble Creek

<sup>12</sup> The impacts of replacing the 2-lane County X bridge over Pebble Creek with a 4-lane bridge were evaluated in a 2006 Environmental Assessment prepared by Waukesha County and WisDOT (ID 2370-08-00).

due to use of single-span bridges that would avoid in-stream disturbance and strict erosion control measures during construction to prevent sediment from entering Pebble Creek.

According to DNR's website for endangered resources, the longear sunfish prefers clear, shallow, moderately warm and still waters of streams with rubble, gravel and sand substratums and moderate aquatic vegetation. Based on field observations, the locations where culvert extensions are proposed do not provide these conditions and it is therefore unlikely that this fish would be present at these locations. Stream conditions at the Pebble Creek crossing locations where new or replacement bridges are proposed may be suitable for the fish. However, no impacts would be expected to occur because of the use of single-span bridges and strict erosion control measures during construction to prevent sediment from entering Pebble Creek.

### **Birds**

According to DNR's endangered resources website, the Henslow's sparrow prefers habitat that includes old fields, open grasslands, wet meadows, unmowed highway rights-of-way, undisturbed pastures, timothy hay fields and fallow land with tall weeds. This species is a habitat specialist and has declined from loss of uncultivated fields with tall and dense vegetation. The Henslow's sparrow is known to occur within the primary environmental corridors adjacent to Lower and Upper Pebble Creek.

North of Madison Street, there is no primary environmental corridor within or adjacent to the project area, and no impacts to Henslow's sparrow are expected. Between Madison Street and the Wisconsin & Southern Railroad, the Build Alternative would affect a small strip of primary environmental corridor adjacent to County TT immediately south of Madison Street, but the small area affected and its proximity to the road make it unlikely there would be any impact on the sparrow. South of Madison Street, the Build Alternative would pass through a residential area and cultivated fields that do not provide suitable habitat for Henslow's sparrow. Between the Wisconsin & Southern Railroad and Sunset Drive, the Build Alternatives are located in a cultivated field.

Because the Pebble Creek Alternatives are located along the westerly edge of the Pebble Creek environmental corridor within a mature to uneven-age wooded corridor, particularly north of Hawthorne Hollow Drive, it is unlikely that critical habitat for the Henslow's sparrow (undisturbed pastures, open grasslands, old fields) would be affected.

Sunset Drive passes through wetlands in the Pebble Creek environmental corridor. Widening Sunset Drive under the Sunset-to-County X alternative would affect additional wetland. However, because of lack of uncultivated fields adjacent to the alternative, it is unlikely that critical habitat for the Henslow's sparrow would be affected.

### **Plants**

With the exception of the seaside crowfoot (*Ranunculus cymbalaria*), no threatened or endangered plants were observed during SEWRPC's 2011 and spring 2012 wetland delineations or by Waukesha County staff during their July 18, 2013 field review in the area of potential effect for the Build Alternatives. As noted the Prairie Indian plantain and Yellow gentian were delisted in January 2014 and have been removed from the list below.

The plants below were identified by DNR as potentially occurring in the study area (Appendix B, page B17). Their habitat requirements are from DNR's endangered resources website.

Purple milkweed (*Asclepias purpurascens*)<sup>13</sup> is found in open oak forest margins and roadsides and has a wide soil moisture tolerance. Based on the blooming/fruiting period, the optimal identification period is late June through late July. Suitable habitat for this plant may be found along the Pebble Creek Alternatives, particularly north of Hawthorne Hollow Drive.

Wild hyacinth (*Camassia scilloides*)<sup>13</sup> is found in moist prairie remnants especially along roads and railroads. Based on the blooming/fruiting period, the optimal identification period is late April through early May. Potentially suitable habitat for the plant exists in the Pebble Creek environmental corridor, which includes remnant prairies. The Pebble Creek Alternatives and the Sunset-to-County X Alternative could affect this species if it inhabits in the study area.

False hop sedge (*Carex lupuliformis*)<sup>13</sup> is found in floodplain forests and ephemeral woodland ponds. Based on the blooming/fruiting period, the optimal identification period is early August through late September. Based on SEWRPC's wetland delineation report, there is potential suitable habitat for this plant in the Pebble Creek environmental corridor that includes lowland floodplain forests. Therefore, the Pebble Creek Alternatives and the Sunset-to-County X Alternative could affect the species if it inhabits in the study area.

Prairie white-fringed orchid (*Plantanthera leucophaea*, also known as eastern prairie fringed orchid)<sup>13</sup> is found in moist, undisturbed, deep-soiled and calcareous prairies. Based on the blooming/fruiting period, the optimal identification period is late June through late July. Suitable habitat for this species exists in the Pebble Creek environmental corridor, including wetlands, remnant prairies, and natural areas. Therefore, the Pebble Creek and Sunset-to-County X alternatives could affect the species if it inhabits the study area.

Rough rattlesnake root (*Prenanthes aspera*)<sup>13</sup> is found in dry prairies, usually on the lower slopes of hills. Based on the blooming/fruiting period, the optimal identification period is late August through early October. Suitable habitat for the plant is unlikely because of the lack of dry prairies in the area of potential effect for the Build Alternatives. It should be noted that the Pebble Creek Railroad Prairie, located east of County TT, is a mesic prairie.

Hairy wild petunia (*Ruellia humilis*)<sup>13</sup> occurs in dry-mesic prairies and oak opening upland woods. Based on the blooming/fruiting period, the optimal identification period is late May through early October. Suitable habitat for the plant is unlikely because of the lack of dry prairies and oak openings in the area of potential effect for the Build Alternatives. As noted, the Pebble Creek Railroad Prairie is a mesic prairie.

Kitten tails (*Besseyia bullii*) commonly are found in small woodland openings in southern dry or dry-mesic forests or near bluff edges. Based on the blooming/fruiting period, the optimal identification period is late May through late August. Suitable habitat for the plant may be found along the Pebble Creek Alternatives, particularly north of Hawthorne Hollow Drive.

Small white lady's slipper (*Cypripedium candidum*) is found in mesic and wet prairies with moist or wet calcareous soils, and in calcareous fens. It is also found in sedge meadow wetlands. Based on the blooming/fruiting period, the optimal identification period is late May through early June. There is potential suitable habitat for this species in the Pebble Creek environmental corridor that includes wetlands and remnant prairies. Therefore, the

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<sup>13</sup> Has not been found in surveys of the suitable habitat sites within the study area to date.



Pebble Creek Alternatives and the Sunset-to-County X Alternative could affect the species if it occurs in the study area.

Beaked spikerush (*Eleocharis rostellata*)<sup>13</sup> is found in calcareous fens, often on bare shoreline marl flats. This is the only species of *Eleocharis* in Wisconsin to form stolons. Therefore it can be readily identified any time during the growing season. Fruits Pond, a natural area in the City of Waukesha outside the project area, has suitable habitat for beaked spikerush, but to date it has not been recorded at that site.

Seaside crowfoot (*Ranunculus cymbalaria*) was found south of the Wisconsin & Southern Railroad during SEWRPC's project wetland delineations and Waukesha County's July 18, 2013 field review. The Sunset-to-County X Alternative would affect 0.2 acre of seaside crowfoot and its habitat. The Pebble Creek West and Far West alternatives would not affect the seaside crowfoot.

Tufted club rush/bulrush (*Scirpus cespitosus*)<sup>13</sup> is found in fens and sedge meadows. Based on the blooming/fruiting period, the optimal identification period is early June through late August. There is potential suitable habitat for this species in the Pebble Creek environmental corridor that includes fens and sedge meadows. Therefore, the Pebble Creek and Sunset-to-County X alternatives could affect this species if it occurs in the study area.

Sticky false asphodel (*Tofieldia glutinosa*)<sup>13</sup> is found on marly shorelines, cold calcareous seeps, and fens. Based on the blooming/fruiting period, the optimal identification period is early July through late August. There is potential suitable habitat for the species in the Pebble Creek environmental corridor. Therefore, the Pebble Creek and Sunset-to-County X alternatives could affect the species if it occurs in the study area.

Forked aster (*Aster furcatus*) prefers dry to mesic hardwoods. Locations that may have suitable habitat that would be affected by the Build Alternatives are the wooded area on the west side of County TT south of Northview Road and the wooded area south of Sunset Drive and west of the Pebble Creek wetlands affected by the Pebble Creek West and Far West alternatives. The Pebble Creek Alternatives could affect the species if it occurs in the study area. SEWRPC did not identify this species when it conducted its field review of the upland woods south of Sunset Drive in September 2013.

### 3.19.3 Measures to Mitigate Adverse Impacts to Threatened or Endangered Species

Waukesha County and WisDOT will coordinate with DNR and other interested agencies in the design phase to further avoid and minimize potential impacts to threatened and endangered species and their habitat and to develop mitigation measures for impacts that cannot be avoided. The following preliminary mitigation strategies are based on WisDOT's experience and established protocols on similar projects. With the delisting of the Butler's garter snake and the Blanding's turtle, the mitigation concepts in the *Rare Reptile Review* (Casper 2012) report prepared by Great Lakes Ecological Services, and DNR's *Butler's Gartersnake Conservation Strategy* (DNR 2005) and discussed below become recommendations rather than requirements. The DNR continues to recommend installing snake or turtle fencing to protect the special concern Butler's garter snake and the Blanding's turtle.

## Mammals

WisDOT will survey bridges over Pebble Creek for little brown bats, and also the Sunset Drive bridge over Pebble Creek if the Sunset-to-County X Alternative is selected. If the bats are present on bridges planned for demolition, WisDOT will follow the guidelines established by the DNR in its *Broad Incidental Take Permit and Broad Incidental Take Authorization for Wisconsin Cave Bats Conservation Plan*. According to the plan, the DNR has concluded that the take allowed for under this permit or authorization is not likely to jeopardize the continued existence and recovery of the state population of cave bats or the whole plant-animal community of which they are a part. The plan notes that for transportation projects, bridge repairs or demolition occurring from August 16 to May 31 do not have any restrictions. WisDOT and Waukesha County will coordinate with the DNR if bridges providing roosting habitat for the brown bats are planned for demolition outside the above time period. WisDOT and Waukesha County will demolish existing bridges between August 31 and May 31.

## Herptiles

**Habitat Avoidance.** The Pebble Creek West and Pebble Creek Far West Alternatives have been shifted as far west as practicable to minimize encroachment on the Pebble Creek environmental corridor that provides habitat for the Butler's gartersnake, Blanding's turtle, and other amphibians and reptiles. As noted in Section 3.19.2, these alternatives and the Sunset-to-County X Alternative would cause some unavoidable habitat loss.

**Ecopassages.** When habitat exists on both sides of an existing or proposed roadway, the *Rare Reptile Review* (Casper 2012) report recommends use of ecopassages or wildlife passages to allow wildlife to pass safely under the road and continue using both habitat areas. Ecopassages will be evaluated at all stream crossings and at other strategic locations in wetland and upland areas where they are generally placed at low points on the landscape and at the toe of slopes perpendicular to the roadway. Although the DNR has acknowledged that the habitat at the County X crossing of Pebble Creek generally is not suitable for the Butler's garter snake, they would like WisDOT to design the proposed bridge to accommodate wildlife passage beneath it. Minutes from the March 5, 2013, meeting with the DNR in Appendix C (page C61) discuss design ideas at the County X crossing that would promote the passage of wildlife under the bridge. Successful use increases with passages that are larger in size, straight, and shorter in length, and that provide light and vegetative cover. At stream crossings, wildlife passages typically are designed to provide a dry shoreline pathway at a higher elevation than the stream and to provide additional vegetative cover.

For the Pebble Creek West and Pebble Creek Far West alternatives, an ecopassage will be evaluated between Sunset Drive and WIS 59 to reduce fragmentation of the environmental corridor and maintain habitat connectivity. During design, WisDOT and Waukesha County will evaluate the need for wildlife barriers on both sides of the new roadway from Sunset Drive to WIS 59 to keep wildlife off the roadway and direct their movement toward ecopassages. For the Sunset Drive-to-County X Alternative, WisDOT and Waukesha County will evaluate an ecopassage on Sunset Drive as well as wildlife barriers on both sides of Sunset Drive from County X to the Wisconsin & Southern Railroad. Potential ecopassage locations are shown in Appendix E sheets 5 and 6.

**Exclusion Barriers.** Snake and turtle exclusion barriers can be used before and during construction to minimize movement into work areas, to allow removal surveys to be conducted, and to allow removal of animals from work areas so as to reduce mortality. Exclusion barriers involve fencing suitable habitat areas with trenched-in silt fence. Exclusion barriers typically are installed in March, with removal surveys conducted in early July. The barriers are kept in place until construction is completed. Maintenance occurs outside the active season, from roughly November 5 through March 15. DNR's *Butler's Gartersnake Conservation Strategy* (DNR 2005) provides detailed specifications for snake exclusion fencing.

**Habitat Management.** WisDOT and Waukesha County will consider options to mitigate loss of habitat for the Blanding's turtle and Butler's gartersnake in consultation with DNR during design. In addition, the *Butler's Gartersnake Conservation Strategy* (DNR 2005) has guidance for maintaining suitable upland habitat for the Butler's gartersnake that WisDOT and Waukesha can consider if they decide to obtain property to mitigate the project's impact on Butler's gartersnake habitat.

Similarly WisDOT and Waukesha County will evaluate recommendations in the *Rare Reptile Review* (Casper 2012) report to minimize impacts to Blanding's turtle habitat. The report recommends that careful attention be given to the design of stormwater basins as these often attract turtles and can be detrimental if turtles are exposed to contaminated runoff. If detention ponds are constructed along the proposed improvements, WisDOT and Waukesha County will only use dry detention ponds, which should be less attractive to Blanding's turtles because of the infrequent presence of standing water. WisDOT and Waukesha County will consider options to avoid impacts to sand and gravel lenses with groundwater flow, because Blanding's turtles and Butler's gartersnakes use those areas for part of their life cycles.

**Monitoring.** The *Rare Reptile Review* (Casper 2012) Report recommends development of a monitoring plan that would include biotic surveys to establish baseline conditions for Butler's gartersnakes, Blanding's turtles and other rare species. WisDOT and Waukesha County will evaluate whether they want to develop a monitoring plan during design.

### **Mussels and Fish**

As noted in Section 3.19.2, the potential for adverse impacts to threatened mussel and fish species is expected to be minimal because of the location and type of construction involving waterways that would occur with the build alternatives. Construction in or near waterways would be performed in accordance with WisDOT's *Standard Specifications for Road and Bridge Construction* (WisDOT, 2009b); Wisconsin Administrative Code Chapter TRANS 401, *Construction Site Erosion Control and Stormwater Management Procedures*; and the WisDOT/DNR Cooperative Agreement, *Memorandum of Understanding on Erosion Control and Stormwater Management*. Implementation of strict erosion control measures and best management practices will minimize the potential for sedimentation into the waterways and associated adverse effects on water quality. WisDOT and Waukesha County will avoid in-stream work between March 15 and June 1 (dates may be modified in consultation with DNR) of any construction year to protect fish spawning. WisDOT will coordinate with DNR if it is unable to avoid in-stream work during that period.

## Plants

Waukesha County conducted a field survey in July 2013 for potential threatened and endangered plant species identified beginning on page 223 of 346 that could be affected by the proposed improvements. With the exception of the seaside crowfoot, which was originally identified by SEWRPC during wetland delineations, Waukesha County staff did not identify any state protected plant species. The seaside crowfoot would be directly affected by the Sunset-to-County X Alternative.

## Birds

Waukesha County did not observe the Henslow's sparrow during its July 2013 field review.

WisDOT and Waukesha County also will reinspect the County TT, Sunset Drive, and County X bridges over Pebble Creek during design. If nests are present, no disturbance will be allowed between May 1 and August 30 of the construction year. If construction conflicts with the swallow nesting period, WisDOT will implement measures to avoid impacts or prevent swallows from nesting on the structures. Typical measures include the following:

- Demolition of existing structures outside the nesting season (May 1 to August 30 of the construction year) or during the nesting season if a depredation permit is obtained from the USFWS
- Removal of nests before the nesting season or other means to prevent nesting such as placement of netting on the structure before nests can be established.

## 3.20 Noise

### 3.20.1 Affected Environment

Traffic and construction noise for transportation projects are evaluated in accordance with FHWA's noise regulations in 23 CFR 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise* as revised in July 2010 (FHWA 2010b) and WisDOT's procedures for implementing the FHWA regulations (WisDOT FDM, Chapter 23, Noise).

The five major traffic noise sources are autos, medium trucks, heavy trucks, buses, and motorcycles. The traffic noise components of those five major sources are running gear and accessories, engine and aerodynamic/body noise.

The West Waukesha Bypass project meets FHWA's definition of a Type 1 project for the purpose of noise impact evaluation. Type 1 projects involve construction of a roadway on new location, substantial alteration of the horizontal alignment or vertical profile of an existing highway, or the addition of traffic lanes including through lanes and auxiliary lanes.

FHWA has established noise impact thresholds for various land use categories. These thresholds are used to determine when a noise impact would occur and when consideration of noise abatement measures is warranted. Referred to as Noise Abatement Criteria (NAC) in FHWA's noise regulation, the noise thresholds were established to balance control of future increases in highway traffic noise with the economic, physical and aesthetic considerations related to traffic noise abatement measures.