Florida Department of Transportation
Wildlife Crossing Guidelines
2023

Introduction

These guidelines have been developed for use by the Florida Department of Transportation (FDOT) to evaluate the **appropriateness** of including wildlife crossings (upland or wetland) for proposed projects on the State Highway System (SHS) or as possible stand-alone retrofit projects on the SHS when warranted. These guidelines also establish **criteria** that must be considered during design of wildlife crossings. These guidelines have been developed in coordination with the United States Fish and Wildlife Service (USFWS) and Florida Fish and Wildlife Conservation Commission (FWC), which have regulatory authority and are the recognized experts for wildlife within the State of Florida.

The Florida Wildlife Corridor Act (259.1055, Florida Statutes) was established in 2021 and these guidelines adopt the definitions therein for the following terms:

- Conserved lands – federal, state, and local lands owned or managed for conservation purposes, including, but not limited to, federal, state, and local parks; federal and state forests; wildlife management areas; wildlife refuges; military bases and airports with conservation lands; properties owned by land trusts and managed for conservation; and privately owned land with a conservation easement, including, but not limited to, ranches, forestry operations, and groves.
- Florida wildlife corridor – the conserved lands and opportunity areas defined by the Florida Department of Environmental Protection as priority one, two, and three categories of the Florida Ecological Greenways Network.
- Opportunity area – those lands and waters within the Florida wildlife corridor which are not conserved lands and the green spaces within the Florida wildlife corridor which lack conservation status, are contiguous to or between conserved lands, and provide an opportunity to develop the Florida wildlife corridor into a statewide conservation network.
- Wildlife – the same meaning as in Article II of the Wildlife Violator Compact Act, s. 379.2255 which reads in part: all species of animals, including, but not limited to, mammals, birds, fish, reptiles, amphibians, mollusks, and crustaceans, which are defined as "wildlife" and are protected or otherwise regulated by statute, law, regulation, ordinance, or administrative rule
- Wildlife corridor – means a network of connected wildlife habitats required for the long-term survival of and genetic exchange amongst regional wildlife populations which serves to prevent fragmentation by providing ecological connectivity of the lands needed to furnish adequate habitats and allow safe movement and dispersal.
- Wildlife crossing – a landscape design element that connects two or more patches of wildlife habitat and that is meat to function as a safe conduit for wildlife over or beneath roads, waters, and other barriers to wildlife movement and that is designed to protect Florida panther and other critical wildlife habitat corridor connections and to reduce motor vehicle collisions with wildlife, to reduce the likelihood of injuries and mortalities to humans and wildlife from such collisions, and to reduce the potential for damage to motor vehicles from such collisions.

Wildlife crossings are designed based on site specific needs and constraints, but generally include one or more of the follow elements:

- new or modified structures (e.g., bridges, bridges with shelves[1], or wildlife overpasses)
- specially designed culverts
- directional or barrier fencing (with jump outs if appropriate), walls, or embankments

Other design elements such as reduced nighttime speed limits, species crossing signs, and roadside animal detection may also be incorporated into wildlife crossing locations. Wildlife crossings may coincide with other uses such as greenways and trails (e.g., hiking, equestrian, paddling) or cattle and farm crossings when these uses are compatible. Wildlife crossing locations should be identified as early as possible in the project development processes, and prior to project design.

Timing to Identify Wildlife Crossing Opportunities

During project development the FDOT District offices, in coordination with USFWS and/or FWC, will determine if a wildlife crossing is appropriate. The FDOT also considers input from other stakeholders, including local governments, non-governmental organizations, and the public. Although opportunities for input exist throughout the process, the FDOT has two phases where early coordination and input are most effective in addressing wildlife connectivity: the Planning phase and the Project Development and Environment (PD&E) phase. The processes used for review and input during these phases include:

1) In the Planning Phase, Efficient Transportation Decision Making (ETDM) is the process used to screen qualifying projects (refer to ETDM manual) during which wildlife agencies, land acquisition and management agencies, and other stakeholder input is solicited to provide early scoping information regarding potential effects and resources of concern in the project area. During a screening event, FDOT uses available habitat, land use, and wildlife information in the Environmental Screening Tool (EST), including the Wildlife Crossing Considerations data layers, to identify initial wildlife crossing opportunities. The District will also use other methods and information such as field reviews and local knowledge to supplement the GIS information. Resource agencies and stakeholders are requested to review and comment on wildlife crossing opportunities or other wildlife impact minimization measures and potential mitigation strategies as well as identify opportunity areas/gaps in conservation lands where land acquisition may be needed to support wildlife crossings.
2) In the PD&E Phase the PD&E Study is the process by which the FDOT develops the project alternative(s) and analyzes project impacts. It is important for resource agencies and stakeholders to be involved during this phase since this is when preliminary design, constructability, financial needs, and resource agency/stakeholder considerations are balanced to develop the preferred alternative and conceptual design. During this phase it is critical for FDOT to understand the timing of when resources agencies will address

[1] This structure modification includes a shelf at the toe of the riprap slope protection area under a bridge. This modification can be used to provide a raised alternative for wildlife accommodations when flooding limits wildlife passage at the ground level.

opportunity areas/gaps in conservation lands needed to support wildlife crossings. This is also the phase where project commitments are initially developed.

Guidelines

In evaluating a project for a potential wildlife crossing the following guidelines should be observed:

For a proposed FDOT project: Wildlife crossings are typically considered when the project is a new alignment, capacity improvement, roadway reconstruction or bridge replacement. However, if FDOT finds that a wildlife crossing may be beneficial on other projects (e.g., resurfacing projects with drainage improvements) the District can review the project/site specific circumstances to consider inclusion of a crossing in the project.

For a requested retrofit project, Districts should require entities requesting a wildlife crossing to provide scientifically based documentation or studies to substantiate their requests. Funding for acceptable, substantiated requests could result from financial partnerships with requesting entities. In support of these efforts, requesting entities can work with other stakeholders to facilitate funding, to meet coordination requirements with property owners /other stakeholders, and identify right of way and maintenance requirements. Retrofit projects may require the requesting entity to agree to maintain and/or fund the maintenance of the wildlife crossing. It is important to advise the requesting entity that appropriate agreements (i.e., Local Funds Agreements/Maintenance Agreements) would need to be executed consistent with FDOT requirements and related Work Program approvals would be needed in order to design and construct a retrofit project.

The following list should be used as a guide in evaluating whether a wildlife crossing is appropriate. The list below is not exhaustive and should not be considered a checklist, but simply a guide for coordination, consultation and decision making:

- Is there a documented or science-based need for a wildlife crossing that is supported by USFWS and/or FWC and other resource agencies (as applicable) such as:
    - Are there wildlife documented within the project area?
    - Are there documented road kills of wildlife with high conservation value (as determined by the USFWS/FWC)? If not, this should not be construed as a requirement for FDOT to conduct a roadkill survey.
    - Does wildlife traversing the roadway create a potential hazard to motorists and/or wildlife?
    - Is the project within the documented range of the Florida panther and/or Florida black bear?
- Does the project cross or fragment designated critical habitat or a documented landscape level habitat linkage, ecological greenway, the Florida Wildlife Corridor, or a Florida Forever project area? This may be especially important when a median barrier is proposed that could create entrapment of the species within the roadway.
- Are the future land use and development patterns compatible with wildlife needs or ecosystem viability?

- Does the project involve locations of critical conservation need as determined by USFWS or FWC?
- Are conserved lands needed to achieve successful use of a wildlife crossing? If so, are conserved lands present in sufficient amounts on both sides of the road (adjoining and contiguous), where a wildlife crossing may be located, including the ability to provide adequate fencing (where appropriate) to guide wildlife for a sufficient distance to achieve successful use of the crossing?

Generally, these questions would apply to large, new or retrofit wildlife crossings that target wildlife with a large home range as compared to smaller wildlife crossings where a shelf is being added to an existing structure. These questions should be discussed and needs agreed upon with USFWS or FWC during the ETDM Screening and/or the PD&E Study. If one of these conditions required to achieve successful use of the crossing does not exist prior to the design phase but is reasonably certain to occur no later than the **beginning** of the 60% project design phase (when environmental permit applications are typically submitted), the wildlife crossing can be considered. Should the conditions agreed upon by the FDOT and resource agencies not exist at the beginning of the 60% design phase, the FDOT may decide not to move forward with the inclusion of the wildlife crossing in the project. In cases where a project achieves 60% design but is not funded for right of way acquisition or construction and is put on "hold", the FDOT may consider moving forward with the inclusion of the wildlife crossing if the conditions have been satisfied by the time the project design is resumed and if the schedule and budget allow.

Answers to the above questions should serve as a guide to determine whether a wildlife crossing is appropriate. In addition, this information should support the selection of an appropriate wildlife crossing design that would promote wildlife movement or ecosystem viability. The District should consult with USFWS or FWC when alternative measures and technology are considered.

In cases where a documented need or science-based data does not exist to adequately support a proposed crossing, it may be necessary to perform studies or additional research to obtain the data. Generally, the party requesting the wildlife crossing is expected to perform the study or conduct the needed research. The USFWS and/or FWC should have an active role in the review and development of relevant studies and in the evaluation of the results, including meeting with the appropriate District about the final recommendations. This effort needs to be done in a timely manner so as not to slow the progress of the project development process.

The specific design (type, size, and location) of the wildlife crossing should be determined by the District through coordination with the USFWS and/or FWC and other resource agencies as appropriate. The District may also consider input from other interested stakeholders.

A wildlife crossing design must take the following criteria into consideration:

- The wildlife crossing cannot compromise any state or federal highway safety criteria.
- The wildlife crossing cannot compromise FDOT design requirements. Should roadway or bridge design variations or exceptions be needed for the proposed wildlife crossing proper and timely review by the Districts and Central Office (as applicable) would be required. If not

approved, the wildlife crossing would require redesign and further coordination with the agencies to determine whether it is feasible to provide the crossing.

- The wildlife crossing cannot cut off an adjacent property owner's only practicable route of ingress/egress to their property. Coordination with adjacent property owners may be needed for addressing access related issues. Results of this coordination could affect structure locations and/or fencing lengths.
- The wildlife crossing cannot negatively impact adjacent properties (e.g., provide access for people and/or wildlife to private properties where none presently exist).
- The wildlife crossing cannot negatively impact existing drainage patterns or flood off-site properties.
- The placement of the wildlife crossing is usually associated with wildlife mortality hotspots; however, the ultimate placement may be based on the most cost efficient and ecologically effective design that meets the needs identified by USFWS and/or FWC and regulatory agencies as appropriate.
- Upland and wetland habitat impacts should be avoided and minimized to the extent practicable by proper design.
- Lighting at the wildlife crossing should be minimized to the greatest extent practical. Refer to Section 231.2.1 Environmental Lighting in the FDOT Design Manual.
- The wildlife crossing must be accessible for proper maintenance to ensure the structure remains viable. Considerations should include maintenance of fence and gates, vegetation management, "skylight" or other small features supporting the crossing, and sediment or erosion issues. Coordination with maintenance prior to final design and construction is strongly encouraged.
- When various types of wildlife crossings could be applied to a location, a cost-benefit analysis should be considered. The costs of each wildlife crossing type should be compared to the anticipated benefit of reduced risks of collisions for both motorists and wildlife. Costs for the wildlife crossing should include design, permitting, right-of-way, construction, and long-term maintenance (e.g., fencing, gates and maintaining wildlife access to the wildlife crossing when applicable). Costs for collision reductions should be coordinated with the Traffic Operations Office and be based on the anticipated number of reduced collisions using the data supporting the need for the wildlife crossing. The Wildlife Crossing Calculator developed by UC Davis may be used to develop this cost benefit analysis. Contact OEM for access and support.
- Should post-construction monitoring be requested by a regulatory agency, USFWS and/or FWC should have an active role in the review and development of the monitoring plan. Any post-construction monitoring should be for data collection and information only and will only be conducted for a limited period of time. FDOT may also implement long-term monitoring at broad intervals (e.g., semiannually, bi-annually) to look for any maintenance issues (e.g., vegetation removal, erosion issues, fence repairs) that may need to be addressed.