

# **Appendix I: Refuge Operating Needs System (RONS) and Maintenance Management System (MMS) Projects**



## Appendix I: Refuge Operating Needs System (RONS) and Maintenance Management System (MMS) Projects

### Refuge Operating Needs System (RONS)

| Project No. | Project Title and Description   | Cost Estimate<br>(1,000 of \$) |
|-------------|---|--------------------------------|
| 97001       | <i>Increase Pest Plant Control:</i> Use a combination of mechanical and chemical measures to eliminate autumn olive on the Crab Orchard National Wildlife Refuge. Natural plant succession is virtually impossible on areas of the refuge due to the existence and increasing amount of autumn olive. This exotic woody plant is an early invader and tends to out-compete native woody plants. The project will reduce and control invasion of autumn olive throughout the refuge.   | \$56.808                       |
| 97003       | <i>Conduct Nongame Bird Census:</i> Conduct a nongame bird census on the refuge to provide a better understanding of bird use of the refuge with emphasis on Midwest species of concern. Information will be used to help the refuge make management decisions relating to restoring fragmented forests and grasslands. A standardized census method will be used in cooperation with the Illinois Natural History Survey and Illinois Department of Natural Resources.   | \$34.56                        |
| 97009       | <i>Reduce Forest Fragmentation:</i> Forest habitat fragmentation will be reduced by restoring the native hardwood vegetative cover on selected parcels of open land. Restoration involves mechanical and chemical site preparation treatment, cover crop establishment, planting native seedlings, monitoring forest development, and follow-up silvicultural treatments. Providing large blocks of high quality habitat should increase nesting success of forest interior bird species and also help preserve biological diversity. This project will decrease habitat fragmentation and improve wildlife productivity.   | \$20.24                        |
| 97008       | <i>Enhance Timber Management:</i> Conduct forest habitat improvement treatments using various silvicultural practices including thinning, stand improvement cutting, and regeneration cutting. A priority project on the Refuge is the conversion of 3,500 acres of non-native pine plantations to an oak-hickory forest. An inventory of advanced hardwood seedlings and sprouts will be conducted on 600 acres of pine plantation per year to determine if an adequate number of trees are present before the overstory is converted to native hardwoods. Removal of pine trees will be done to improve habitat conditions for many species of migratory birds that depend on large tracts of native hardwood forest. | \$181.6                        |
| 98027       | <i>Conduct Indiana Bat survey:</i> Conduct an Indiana bat survey on the Crab Orchard National Wildlife Refuge. In order to avoid adverse impacts to the federally endangered Indiana bat and to comply with endangered species laws and regulations, surveys will be conducted within refuge pine stands. Conversion of 3,500 acres of nonnative pine trees to native hardwood forest is a very high refuge priority.   | \$27                           |
| 98036       | <i>Provide Shoreline Stabilization for Crab Orchard Lake:</i> Stabilize the shoreline of Crab Orchard Lake with filter fabric and rock. Erosion is occurring along 14 miles of the shoreline of Crab Orchard Lake. Wind driven waves are the primary cause of the erosion and rock will slow the process, reducing siltation and improving water quality. Crab Orchard Lake provides habitat for waterfowl, herons, egrets, shorebirds and fish. The lake is also used for various forms of water recreation.   | \$418                          |

### Refuge Operating Needs System (RONS)

| Project No.        | Project Title and Description   | Cost Estimate (1,000 of \$) |
|--------------------|---|-----------------------------|
| <b>RONS Tier 2</b> |   |                             |
| 03001              | Law Enforcement Position Increased Funding:   | \$5                         |
| 04001              | Fulltime Law Enforcement Officer  | \$136                       |
| 02001              | Thin non-native pine plantations to encourage growth of desirable hardwoods                     | \$90                        |
| 02002              | Convert fescue pastures to native warm season grasses and better cool season non-native grasses | \$58                        |
| 02007              | Increase technical oversight of Refuge agricultural program                                     | \$40                        |
| 99801              | Volunteer Program Enhancement   | \$50                        |
| 99003              | Improve Visitor Services  | \$630                       |
| 02003              | Convert hay fields from cool-season cover to warm-season cover                                  | \$16                        |
| 02012              | Protect visitors and provide officer safety   | \$31                        |
| 02005              | Maintain early succession habitat (shrubland) with burning and mowing                           | \$46                        |
| 02011              | Educate Visitors and schoolchildren   | \$28                        |
| 02008              | Remove woody fence row and roadside vegetation to enhance Refuge grasslands for breeding birds  | \$40                        |
| 02004              | Add 30-foot wide field borders of native warm season grasses to farm fields                     | \$4                         |
| 02010              | Install water monitoring devices on the Refuge's 3 large reservoirs                             | \$38                        |
| 98029              | Increase aquatic resources surveys and monitoring   | \$102                       |
| 02009              | Remove trees from 140 ammunition storage bunkers  | \$114                       |
| 98010              | Conduct archeological survey of the refuge  | \$595                       |
| 00003              | Protect Visitors and Refuge Resources from illegal activities                                   | \$160                       |

### Maintenance Management System (MMS) Projects

| Project No. | Project Title   | Cost Estimate (1000's of \$) |
|-------------|---|------------------------------|
| 00432       | Replace / Replace Deficient Heating System in the Headquarters Building | \$153                        |
| 00364       | Devils Kitchen Dam – Phase I [d]  | \$500                        |
| 03507       | CN Construct Turning Lanes at Visitor Center on SR 148.                 | \$600                        |
| 00434       | Replace West Gate Road Bridge.  | \$377                        |
| 00364       | Devils Kitchen Dam – Phase II [cc]                                      | \$1,700                      |
| 98052       | Shoreline habitat restoration and stabilization                         | \$3,563                      |
| 02003       | Replace deteriorated 4 inch steel waterline at Crab Orchard Campground  | \$364                        |
| 98333       | CN Repair Devils Kitchen bridge.  | \$139                        |
| 00130       | Replace deteriorated water distribution lines in the SE quadrant.       | \$471                        |
| 98022       | Remove Sewage & Water Treatment Plant                                   | \$2,279                      |
| 98042       | Construct Visitor & Learning Center                                     | 17,092                       |
| 02001       | Repair Deficiencies on Pond A-41 as Outlined in Dam Safety Report       | \$485                        |

### Maintenance Management System (MMS) Projects

| Project No. | Project Title   | Cost Estimate (1000's of \$) |
|-------------|---|------------------------------|
| 00130       | Replace deteriorated water distribution lines in NW Quadrant.               | \$471                        |
| 02504       | Upgrade Line Roads at Devils Kitchen Area. FHWA Route No. 115               | \$4,500                      |
| 02502       | Repair Devils Kitchen Road. FHWA Route No. 017                              | \$770                        |
| 86015       | Replace deteriorated Pond A-41 Water Control Structure.                     | 157                          |
| 03508       | "PE Road, Parking Lot, and Bridge Rehabilitation"                           | \$300                        |
| 86004       | Resurface Cambria Point Lane. FHWA Route No. 105                            | \$153                        |
| 00130       | Replace deteriorated water distribution lines in the NE quadrant.           | \$472                        |
| 98011       | Remove unused warehouses in Area-7 of the industrial area                   | \$294                        |
| 00435       | Repair deficient Wolf Creek Bridge at Causeway                              | \$110                        |
| 98020       | Remove line roads at Devils Kitchen Lake                                    | \$281                        |
| 01019       | "John Deere 550B Dozer, 78hp, winch"  | \$152                        |
| 01028       | "Champion 710A Road Grader, 135hp, 12' blade"                               | \$142                        |
| 01047       | "Caterpillar D4C III LGP Dozer, 87hp w/cab, 25" track shoes"                | \$121                        |
| 02502       | Repair Surfacing on Headquarters Parking – FHWA Route No. 901               | \$180                        |
| 02503       | Repair Surfacing on Chamesstown School Trail Parking - FHWA Route No. 902   | \$215                        |
| 02505       | Repair Surfacing on Primex Stringtown Parking                               | \$339                        |
| 02506       | Repair Surfacing on Images Marina Parking – FHWA Route No. 906              | \$393                        |
| 02507       | Repair Surfacing on SR 13 Boat Landing – FHWA Route No. 907                 | \$168                        |
| 02509       | Repair Surfacing on Line 16 Parking – FHWA Route No. 914                    | \$122                        |
| 02510       | Repair Surfacing on Wolf Creek Fishing Access Parking – FHWA Route No. 915  | \$115                        |
| 02513       | Repair Surfacing on Devil's Kitchen Campground Parking - FHWA Route No. 925 | \$139                        |
| 02514       | Repair Surfacing on Devil's Kitchen Boat Ramp Parking – FHWA Route No. 926  | \$146                        |
| 02515       | Repair Surfacing on Tacoma Lake Road Parking – FHWA Route No. 927           | \$105                        |
| 02524       | Repair Surfacing on Primex Warehouse Parking – FHWA Route No. 939           | \$201                        |
| 02526       | Repair Surfacing on Ensign-Bickford Parking – FHWA Route No. 941            | \$297                        |
| 02527       | Repair Surfacing on Diagraph Corporation Main Parking – FHWA Route No. 942  | \$166                        |
| 02531       | Repair Surfacing on Pigeon Creek Road – FHWA Route No. 010                  | \$121                        |

### Maintenance Management System (MMS) Projects

| Project No. | Project Title  | Cost Estimate<br>(1000's of \$) |
|-------------|--|---------------------------------|
| 02533       | Repair Surfacing on Stringtown Road – FHWA Route No. 012                 | \$884                           |
| 02534       | Repair Surfacing on Post Oak Road – FHWA Route No. 013                   | \$184                           |
| 02535       | Repair Surfacing on Research Road – FHWA Route No. 014                   | \$126                           |
| 02536       | Repair Surfacing on Wolf Creek Road – FHWA Route No. 015                 | \$919                           |
| 02537       | Repair Surfacing on Tacoma Road – FHWA Route No. 016                     | \$998                           |
| 02539       | Repair Surfacing on Odgen Road East – FHWA Route No. 018                 | \$292                           |
| 02539       | Repair Surfacing on Odgen Road West – FHWA Route No. 019                 | \$686                           |
| 02541       | Repair Surfacing on Old Highway 13 – FHWA Route No. 100                  | \$359                           |
| 02543       | Repair Surfacing on Greenbriar Road – FHWA Route No. 102                 | \$442                           |
| 02544       | Repair Surfacing on Crab Orchard Campground – FHWA Route No. 103         | \$2,111                         |
| 02545       | Repair Surfacing on Images Marina Road – FHWA Route                      | \$310                           |
| 02546       | Repair Surfacing on Cambria Point Lane – FHWA Route                      | \$152                           |
| 02547       | Repair Surfacing on Haven Access Loop – FHWA Route                       | \$129                           |
| 02550       | Repair Surfacing on Spillway Landing Road - FHWA Route No. 109           | \$148                           |
| 02551       | Repair Surfacing on Propeller Road – FHWA Route No. 110                  | \$413                           |
| 02552       | Repair Surfacing on Broken Handle Road – FHWA Route                      | \$207                           |
| 02553       | Repair Surfacing on Bald Eagle Lane – FHWA Route                         | \$562                           |
| 02554       | Repair Surfacing on Devils Kitchen Campground – FHWA Route No. 113       | \$412                           |
| 02555       | Repair Surfacing on Devils Kitchen Boat Ramp Access – FHWA Route No. 114 | \$114                           |
| 02556       | Repair Surfacing on Devil's Kitchen Line 11 Road – FHWA Route No. 115    | \$571                           |
| 02558       | Repair Surfacing on Devils Kitchen Line 13 Road – FHWA Route No. 117     | \$734                           |
| 02559       | Repair Surfacing on Devils Kitchen Line 16 Road – FHWA Route No. 118     | \$587                           |
| 02561       | Repair Surfacing on Cedar Point Youth Camp Road – FHWA Route No. 120     | \$285                           |
| 02562       | Repair Surfacing on Devil's Kitchen Line 3 Road – FHWA Route No. 121     | \$294                           |

### Maintenance Management System (MMS) Projects

| Project No. | Project Title   | Cost Estimate (1000's of \$) |
|-------------|---|------------------------------|
| 02563       | Repair Surfacing on Devil's Kitchen Line 5 Road – FHWA Route No. 122          | \$1,036                      |
| 02565       | Repair Surfacing on Devil's Kitchen Line 6 Road – FHWA Route No. 124          | \$177                        |
| 02566       | Repair Surfacing on Devils Kitchen Line 6 Loop Road – FHWA Route No. 125      | \$530                        |
| 02567       | Repair Surfacing on Devils Kitchen Line 6 Spur Road – FHWA Route No. 126      | \$106                        |
| 02568       | Repair Surfacing on Devils Kitchen Line 6 Loop Spur Road – FHWA Route No. 127 | \$163                        |
| 02571       | Repair Surfacing on Little Grassy Lake Campground Road – FHWA Route No. 130   | \$212                        |
| 02004       | "Freightliner Dump Truck, 52000 GVWR"   | \$100                        |
| 00399       | Visitor Center Dam Rehabilitation [d/cc]                                      | \$3,000                      |
| 01NNN       | Cleanup of Pesticide Contamination in Area 7 Buildings                        | \$140                        |
| 98033       | Enhance environmental education and interpretation opportunities              | \$162                        |
| 00001       | "Develop interpretive, regulatory, and directional signing"                   | \$112                        |
| 99001       | Improve access to house boat pumpout station                                  | \$130                        |
| 98035       | Provide adequate parking for the Playport Marina                              | \$370                        |
| 99003       | Improve Visitor Services  | \$630                        |
| 00003       | Protect Visitors and Refuge Resources from illegal activities                 | \$160                        |
| 03001       | Demolition and Disposal of an abandoned water tower a the south end.          | \$100                        |
| 03002       | Removal and Disposal of Wharehouse S-4-3.                                     | \$130                        |
| 03004       | Construct a Building Addition to the Headquarters Building                    | \$350                        |
| 03006       | Construct and Office Addition to the Visitor Center.                          | \$300                        |
| 03007       | Repair erosion on Little Grassy Dam.  | \$180                        |
| 03008       | Replace deteriorated cyclone fence around Area 6 Igloo Complex                | \$804                        |
| 03009       | Replace deteriorated cyclone fence around Area 13 Igloo Complex.              | \$917                        |
| 03010       | Upgrade Crab Orchard Campground Campsites.                                    | \$360                        |

