ENVIRONMENTAL COMMITMENT MONITORING USING REMOTELY DEPLOYED CAMERAS ON ACTIVE CONSTRUCTION PROJECTS • COLUMBUS, OHIO - OCTOBER 10, 2017
ENVIRONMENTAL COMMITMENT MONITORING USING REMOTELY DEPLOYED CAMERAS ON ACTIVE CONSTRUCTION PROJECTS

Amanda Foley, Ohio Department of Transportation
Matt Perlik, Ohio Department of Transportation
GOALS AND OBJECTIVES

- Environmental Commitments and Compliance
- ODOT’s research involving remotely deployed cameras
- ODOT’s results to date
  - Benefits
  - Drawbacks
- Future research opportunities
ENVIRONMENTAL COMMITMENTS

- Environmental Commitments are any agreed-upon action that **restores**, **enhances**, **avoids**, **minimizes**, or **mitigates** impacts on the human environment.
- Environmental Commitments last throughout the life of a project.
- Failure to comply and/or follow-through may result in:
  - loss of federal monies and approvals
  - degraded public and agency relations
  - fines and project schedule delays
  - potential criminal charges against individuals associated with the action

*Eastern Kingsnake (Lampropeltis getula)*

*Purple Wartyback (Cyclonaias tuberculata)*
RESEARCH: MONITORING FOR COMPLIANCE USING REMOTELY DEPLOYED CAMERAS

Camera Background

- Remotely deployed
- Mobile
- Adjustable mast and leg jacks
- Solar powered
- Pan/tilt/zoom capabilities
- Live stream monitoring
Potential Benefits

- Cost savings
- Time savings
- Ability to monitor site more frequently
  - Identify issues before a non-compliance or violation occurs
  - Ensure compliance with sensitive resources
  - Document compliance for resource agencies
  - Gives resource agencies more confidence in our determination and ability to maintain compliance
Example Projects

- **Bridge Replacement**
  - Bridge removal and replacement over the Little Darby Creek, a State and National Scenic River
  - No in-water work or debris permitted below OHWM of the Little Darby Creek
  - USFWS indicated if debris fell into the stream, ODOT would face penalties such as fines
    - Debris could potentially cause harm to federally endangered mussels

*Clubshell (Pleurobema clava) identified during the mussel survey in Little Darby Creek*

*Rabbitsfoot (Quadrula clyndrica cylindrica) - identified during the mussel survey in Little Darby Creek*
Example Projects

- Major Interchange Improvement
  - Large site with environmental resources spread out within and adjacent to the project area
    - Scenic River (Olentangy River), other streams, wetlands, and Section 4(f) resources (parks, multi-use trail, and recreational purposes within the Olentangy River)
  - Non-compliance occurred due to heavy rains and a BMP failure
    - Environmental monitoring task order initiated following non-compliance
Benefits

- Worked well for the bridge replacement project
  - Monitored work without going to site
  - Only needed to go to the site to set up and take down the camera
    - Approximately 20 minutes each
    - Alternative was someone standing onsite recording the entire removal
  - Useful for a specific compliance goal
- Provides the opportunity to identify potential areas of non-compliance that should be observed during an onsite inspection
RESEARCH: RESULTS TO DATE

Drawbacks

- Less practical for larger sites
  - Can only see one area of the site
  - More for broad review versus goal-based

- Limitations with the software
  - IT security concerns limited access to the cameras → could not access the live stream
  - Could not download archived footage

- Cameras are designed for security, not monitoring
  - Camera performance did not suit our needs
  - Video and images were not high quality
FUTURE RESEARCH

- Purchasing a new camera from a different company
  - Time-lapse camera for construction projects (includes DOT projects) → should be more ideal for commitment monitoring
    - Higher quality images
    - Scheduled photos
    - Can view footage from any part of the project
  - Data stored in the Cloud → no software/connection issues anticipated
CONCLUSION

- Environmental Commitments must be carried through to completion
- Remotely deployed cameras may offer a method of ensuring compliance while reducing cost and time of monitoring
- Security cameras are best utilized for small projects with a specific compliance goal in mind
  - Useful, but less practical for large, complex projects with multiple resources spread out over the project area
  - Software and IT security issues limit the use by DOTs and other state agencies
- Future research is needed
  - New cameras with time-lapse technology
  - Test on other types of transportation projects
QUESTIONS

Amanda Foley, M.A.
Environmental Specialist
Ohio Department of Transportation
Office of Environmental Services
1980 West Broad Street, Mail Stop 4170
Columbus, OH 43223
Amanda.Foley@dot.ohio.gov
614-644-0513

Matt Perlik, M.S.
Assistant Environmental Administrator
Ohio Department of Transportation
Office of Environmental Services
1980 West Broad Street, Mail Stop 4170
Columbus, OH 43223
Matthew.Perlik@dot.ohio.gov
614-466-1937