



Retrofit of

Busse Woods Reservoir

Main Dam

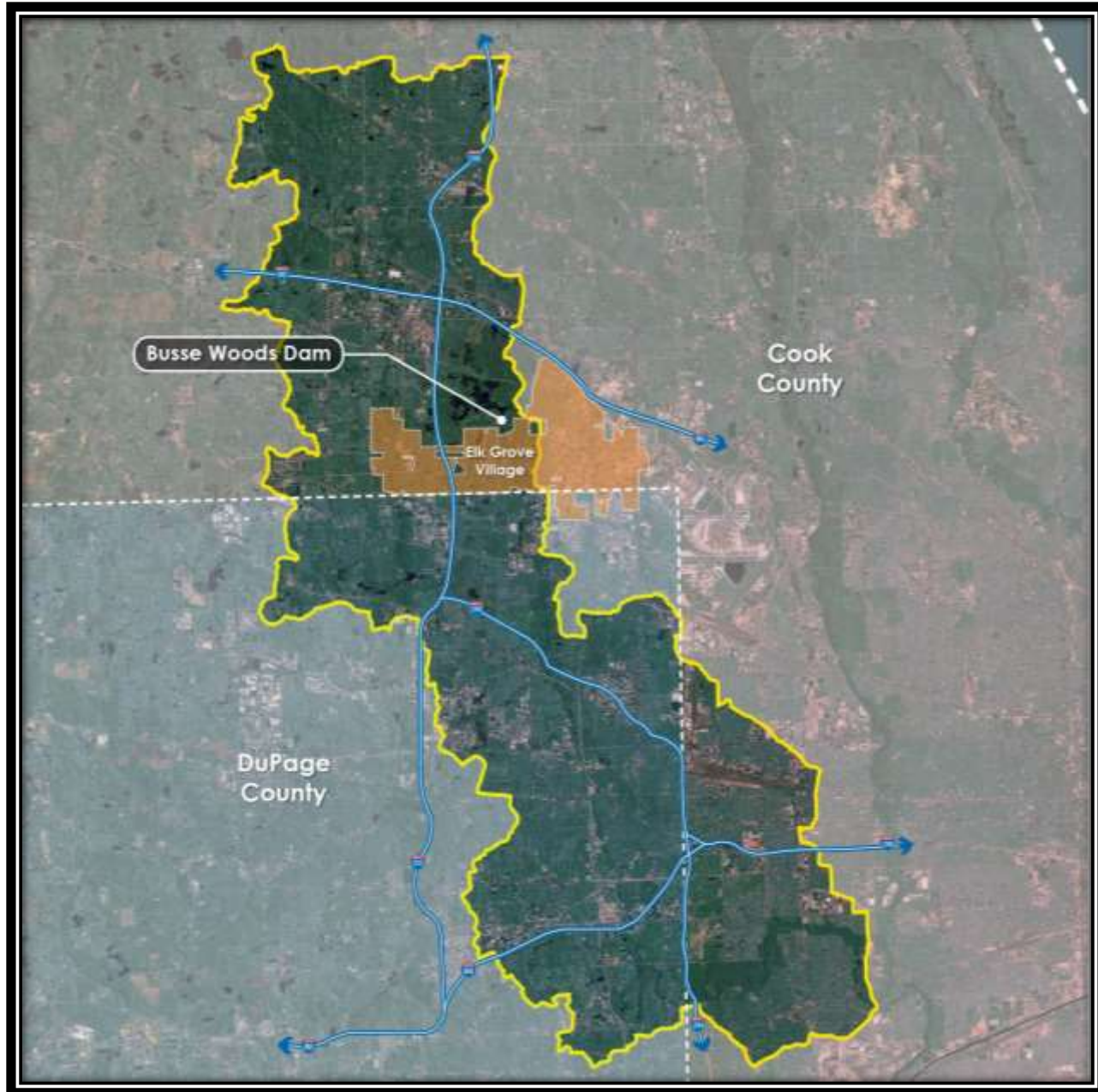
for Flood Mitigation and

Ecological Stabilization

Illinois Lakes Management Association 30th Annual Conference
February 20, 2015



Salt Creek Watershed-Cook and DuPage Counties, Illinois



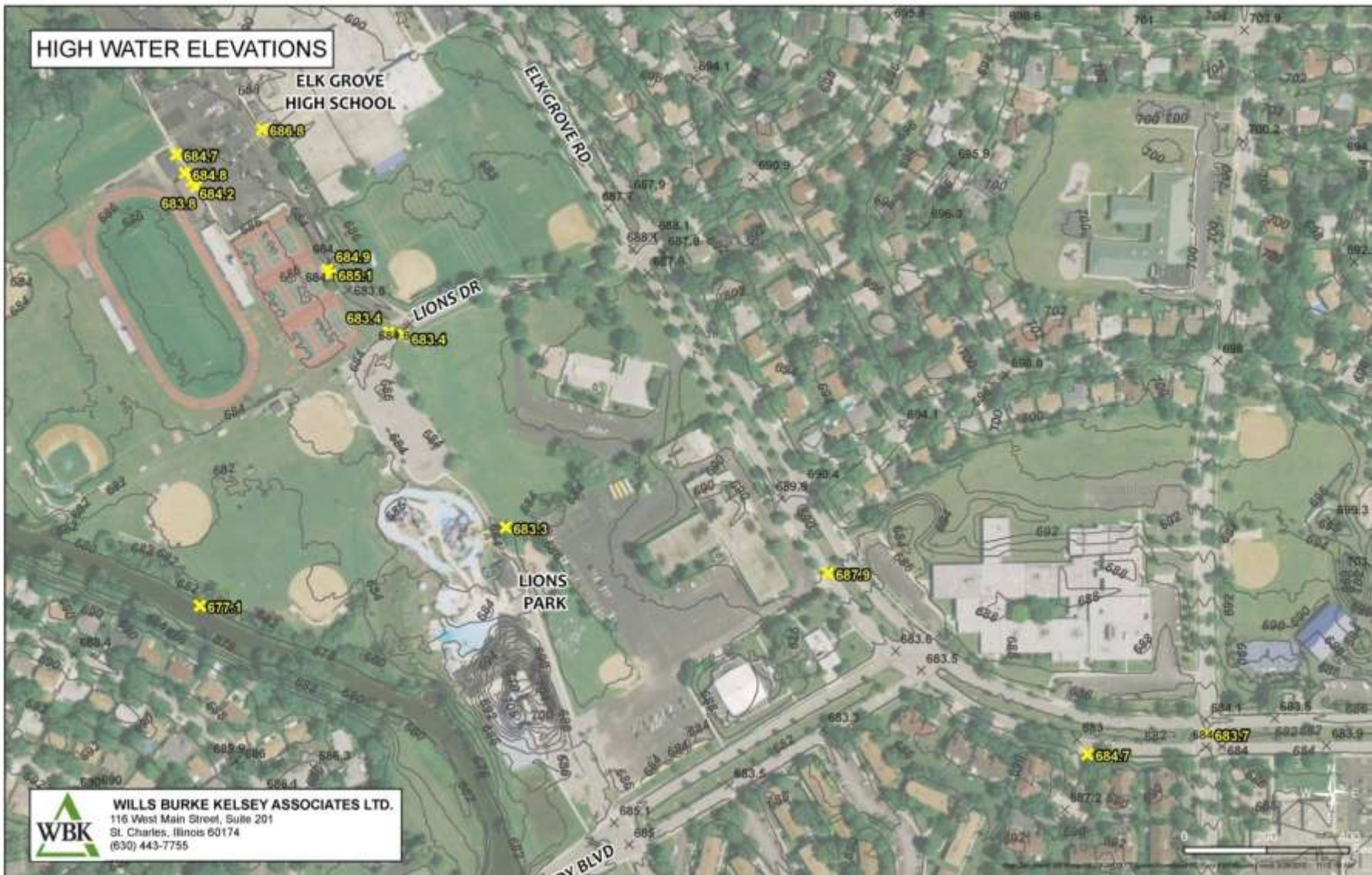


Busse Woods Reservoir and Elk Grove Village





Busse Woods Reservoir and Elk Grove Village




WILLS BURKE KELSEY ASSOCIATES LTD.
 116 West Main Street, Suite 201
 St. Charles, Illinois 60174
 (630) 443-7755



Busse Woods Reservoir -Recreation





Busse Woods Reservoir -Recreation





Busse Woods Reservoir Ned Brown Preserve



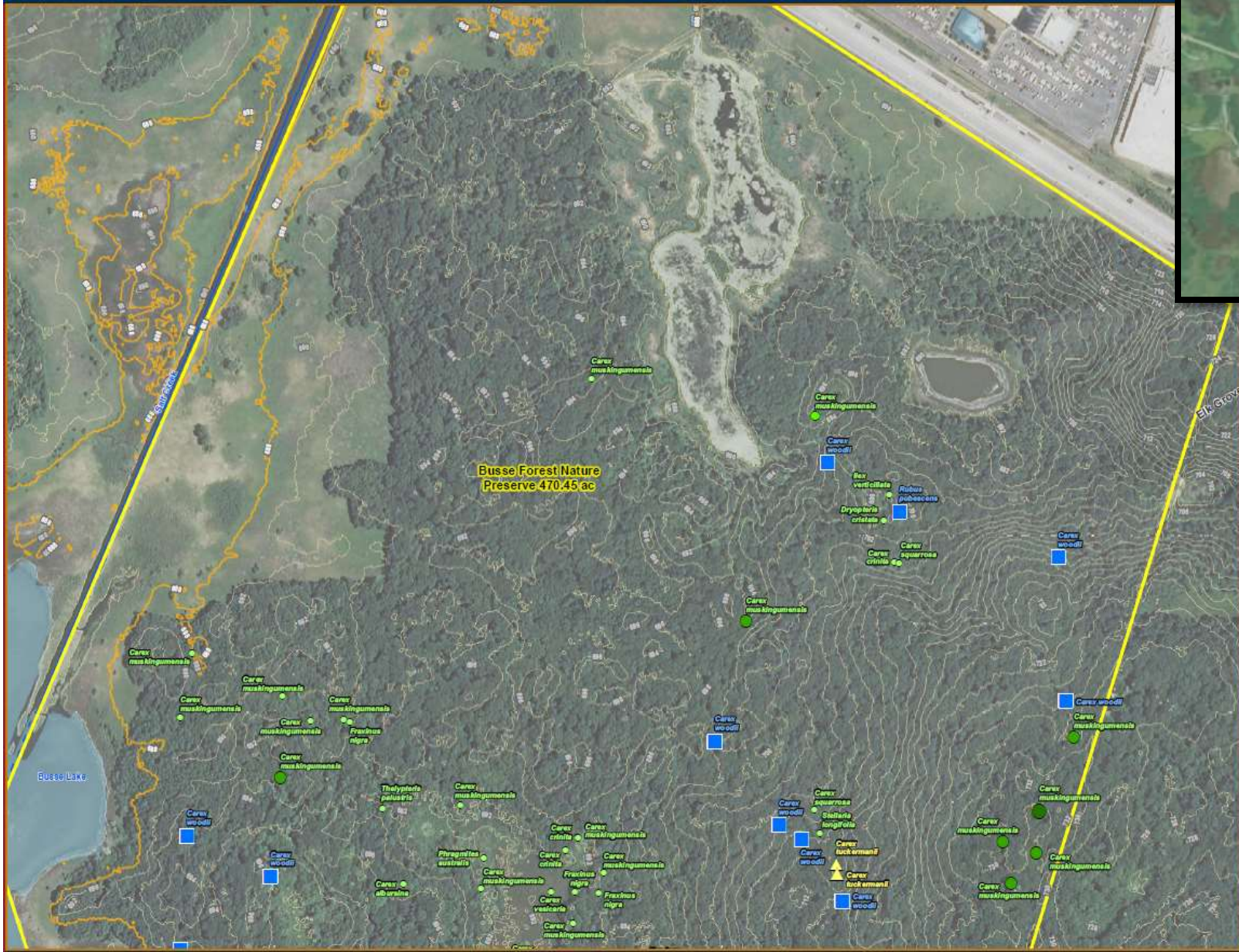
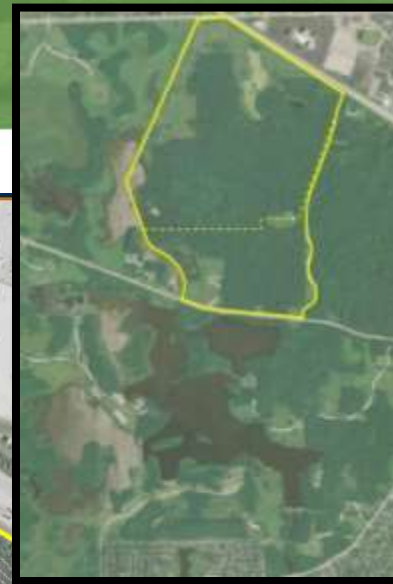


Busse Woods Reservoir Ned Brown Preserve





INPC Site Floristic Survey North



Location
T41N, R11E;
Cook Co., IL



Project Information
Project Number: 193701331
Last Modified: August 05, 2013

Legend

- Busse Forest Nature Preserve
- Busse Woods
- 588 ft Elevation Contours
- 2 ft Elevation Contours

- National Hydrography Data
- Perennial Stream
 - Intermittent Stream
 - Waterbody

Endangered Species - Location & Abundance



Threatened Species - Location & Abundance



Highly Conservative Species - Location and Abundance



Data Sources include: Stantec, USFWS, and ESRI.
Orthophotography: 2012 NAIP.

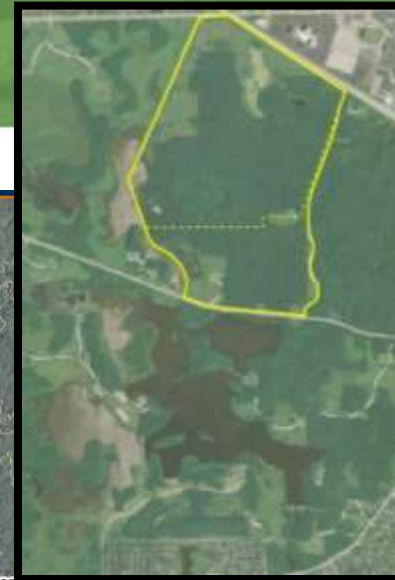


Prepared by	Initials	Date
AB	AB	12/13/2012
Peer Review by	MP	01/24/2013
Final Review by	BK	01/24/2013

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INPC Site Floristic Survey South



Location
T41N, R11E;
Cook Co., IL

0 200 400
Feet

Project Information
Project Number: 193701331
Last Modified: August 05, 2013

Legend

- Busse Forest Nature Preserve
- Busse Woods
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- 2 ft Elevation Contours
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Data Sources Include: Stantec, USFWS, and ESRI.
Ornithology: 2012 NAIIP.

Stantec

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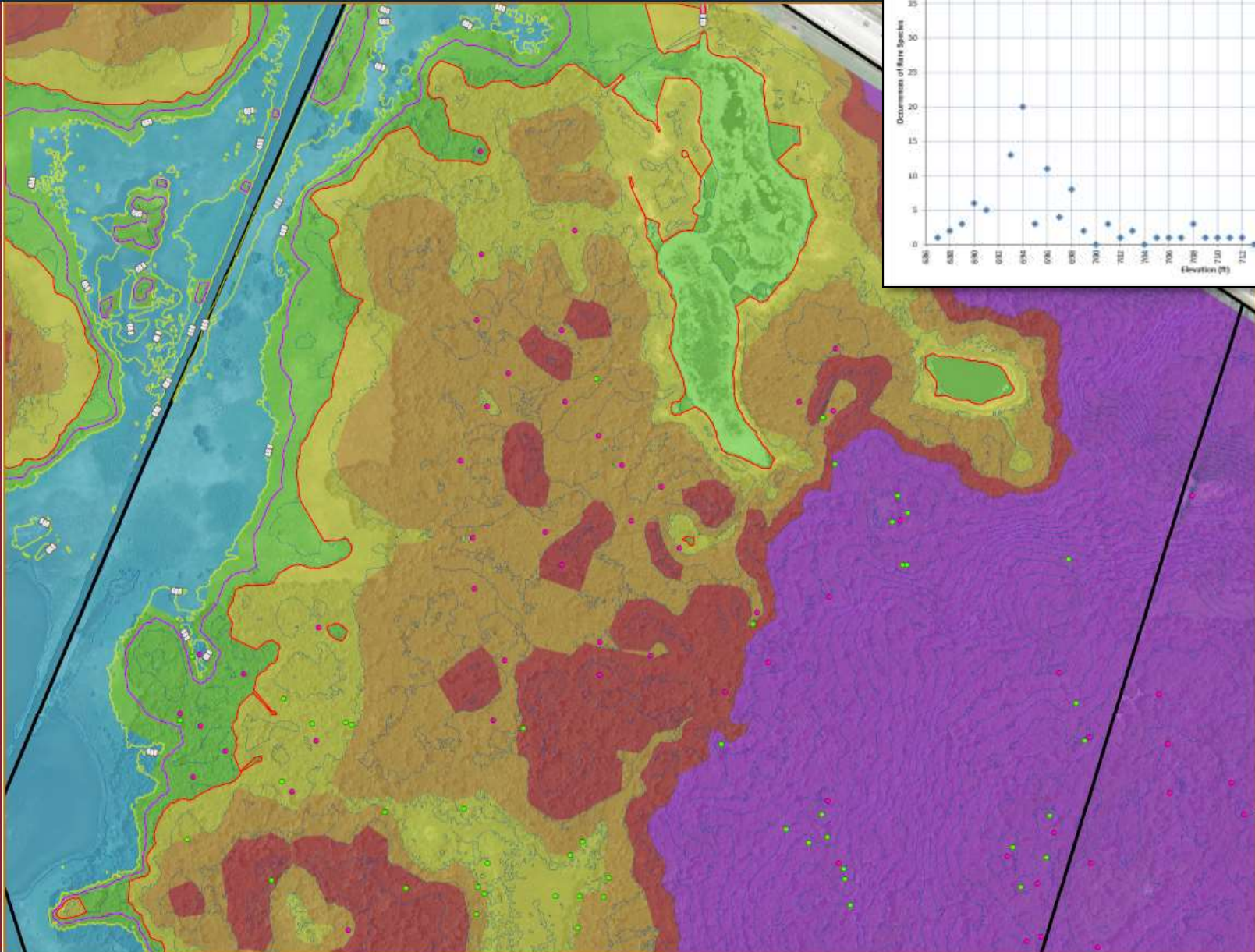
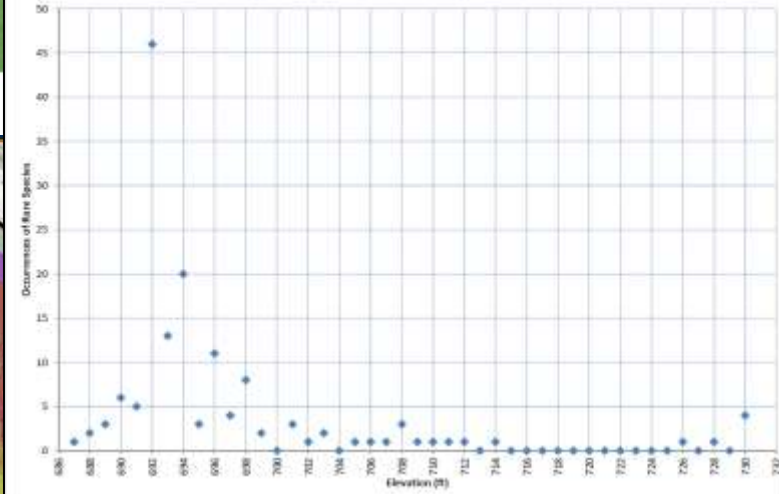
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INPC Site Contour Analysis North

Chart 1. Distribution of Rare Plant Species Across the Elevation Gradient, Busse Woods 2012



Location
T41N, R11E;
Cook Co., IL

Project Information
Project Number: 193701331
Last Modified: September 05, 2013

Legend

- Busse Woods Nature Preserve
- 688 ft Elevation Contours
- 689 ft Elevation Contours
- 690 ft Elevation Contours
- Vernal Pool
- Species of Concern
- 2ft Contour Triangulated Irregular Network (TIN)
- 2ft Contour Line
- 678 - 688 ft
- 688 - 690 ft
- 690 - 692 ft
- 692 - 694 ft
- 694 - 696 ft
- 696 - 708 ft

Data Sources include: Stantec, USFWS, and ESRI.

Prepared by	Initials	Date
AP	AB	01/03/2013
Peer Review by	MP	01/24/2013
Final Review by	DK	01/24/2013

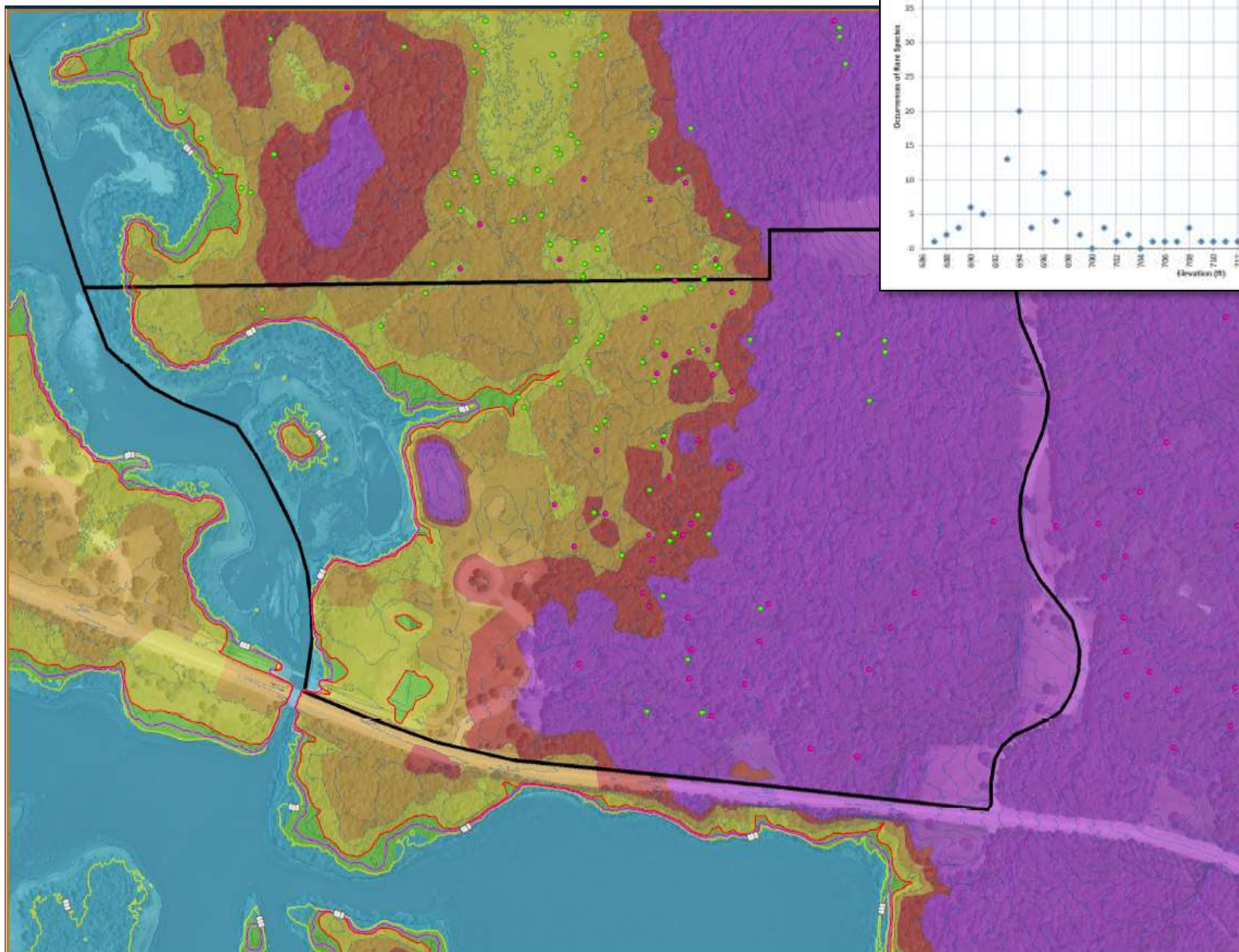
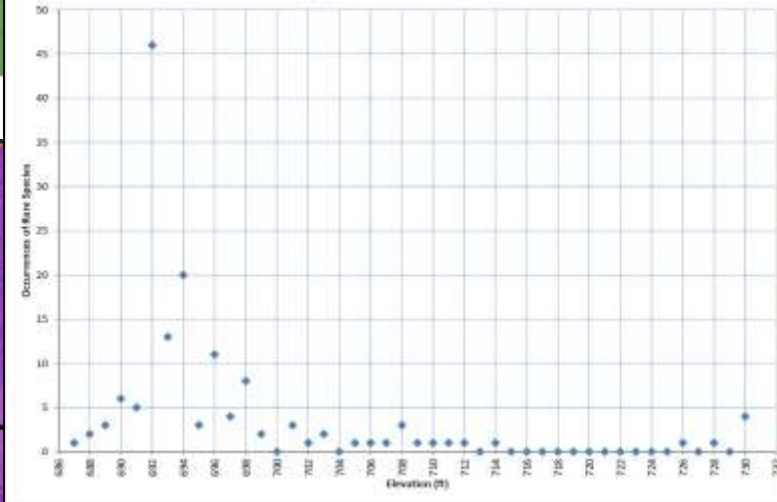
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INPC Site Contour Analysis South

Chart 1. Distribution of Rare Plant Species Across the Elevation Gradient, Busse Woods 2012



Location
T41N, R11E;
Cook Co., IL

Project Information
Project Number: 193701331
Last Modified: September 05, 2013

Legend

- Busse Woods Nature Preserve
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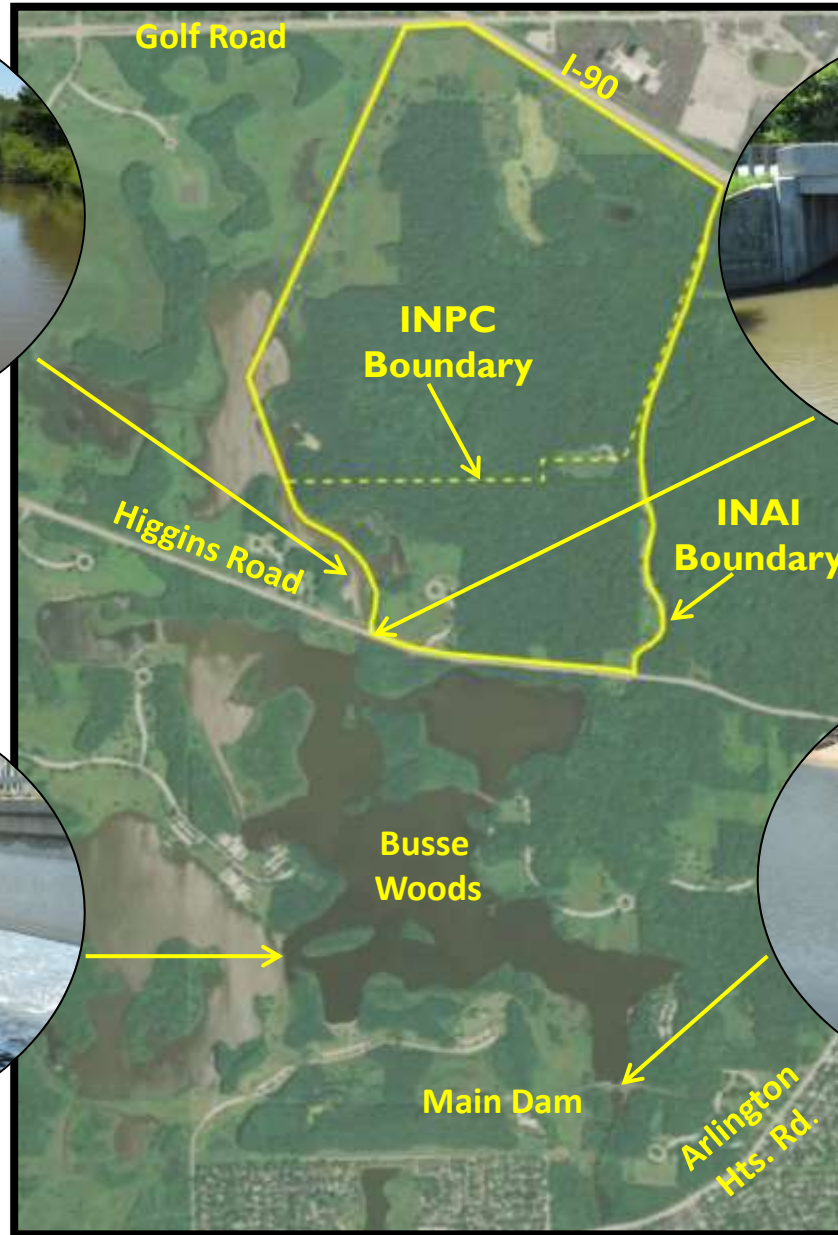
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Busse Reservoir Flood Mitigation- Overview of Control System





Busse Reservoir Flood Mitigation- Main Dam





Busse Reservoir- Main Dam Proposed Modification





Busse Reservoir Flood Mitigation- Main Dam





Busse Reservoir- Main Dam Proposed Modification



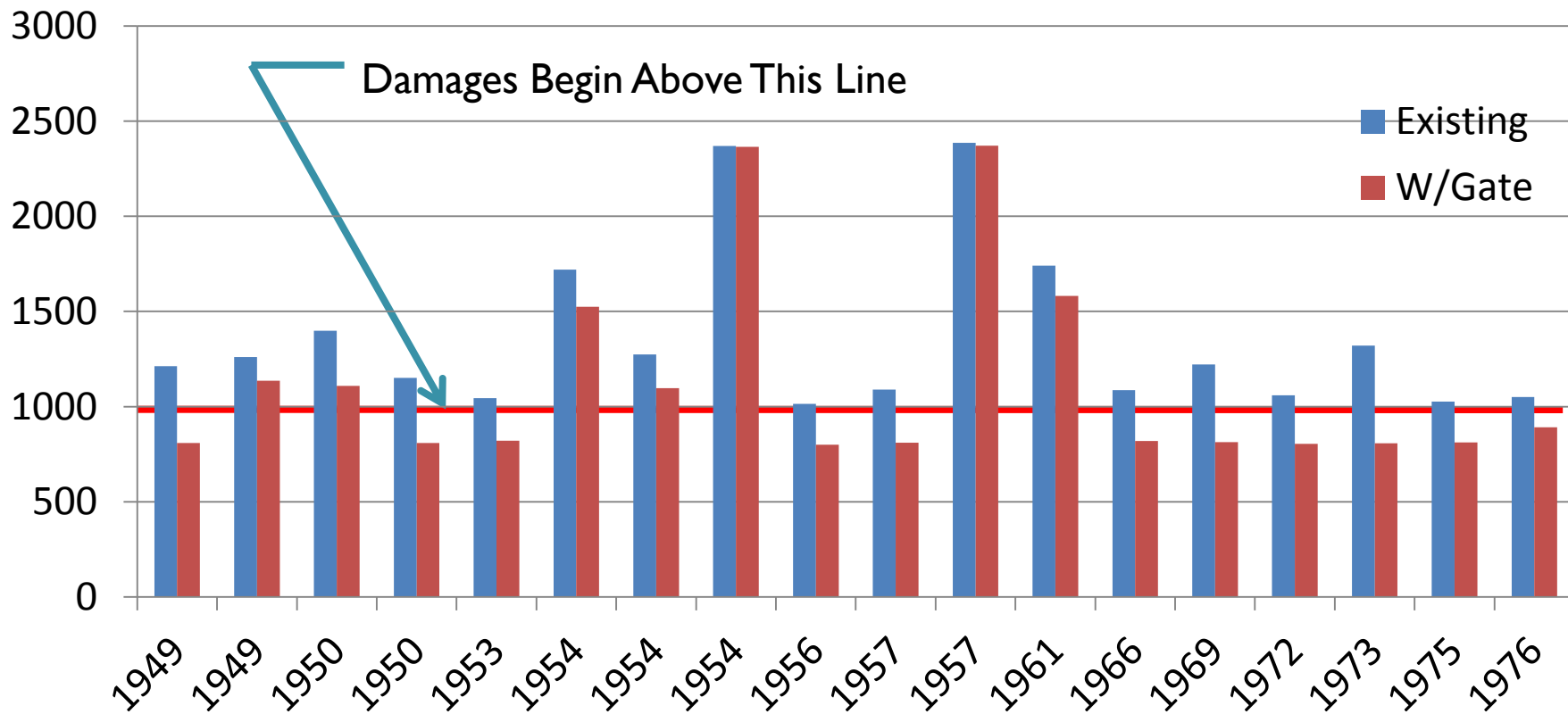


Result Summary Existing vs. Proposed Conditions

	Discharge at Spillway Structure (cfs)	Elevation at Busse Reservoir (feet)	Elevation at JFK Boulevard (feet)
10-year Event	1520/1004	688.77/688.75	684.23/683.31
50-year Event	2793/2694	690.34/690.39	686.15/686.04
100-year Event	3343/3117	690.95/690.95	686.81/686.56



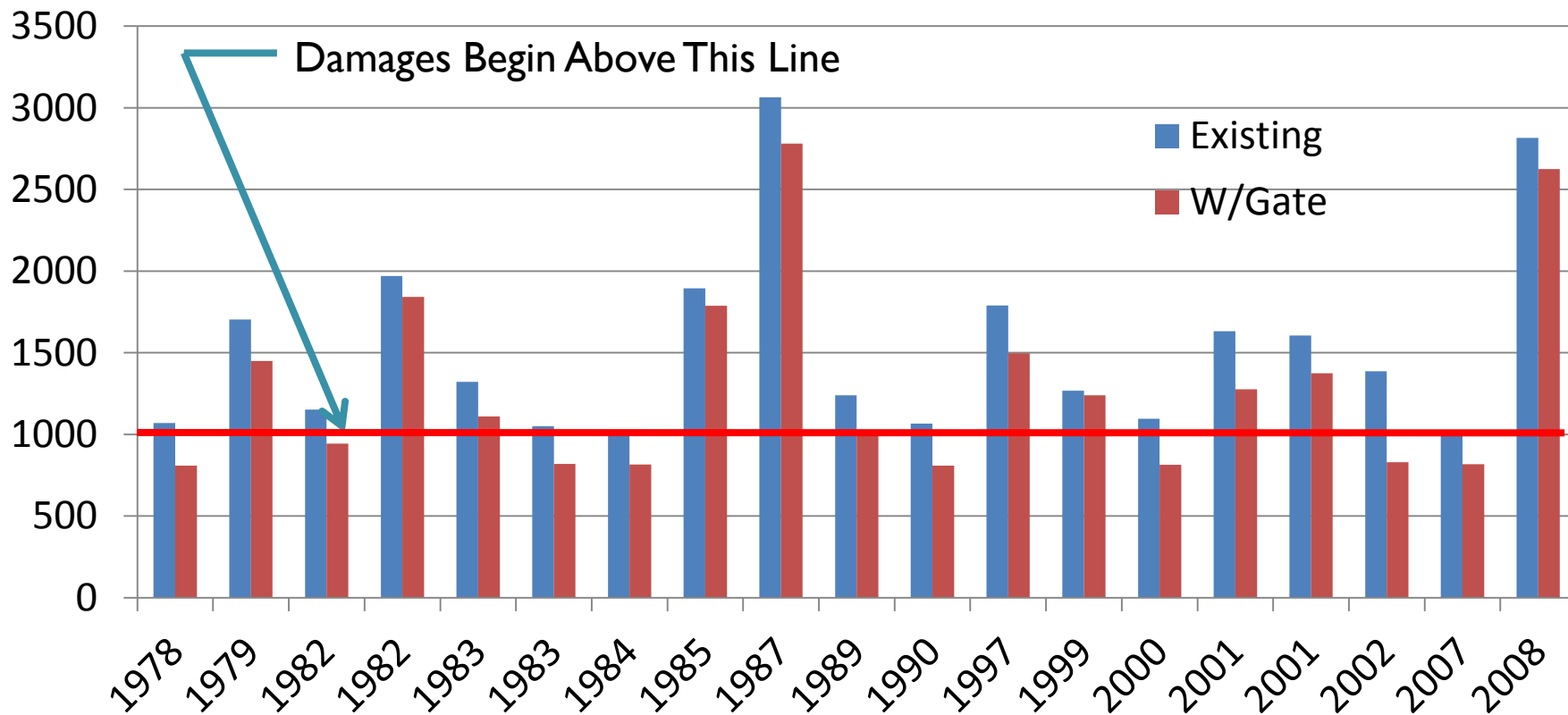
Result Summary Most Severe Historic Events: Elk Grove



DuPage FEQ Model-Combined Upper and Lower Salt Creek



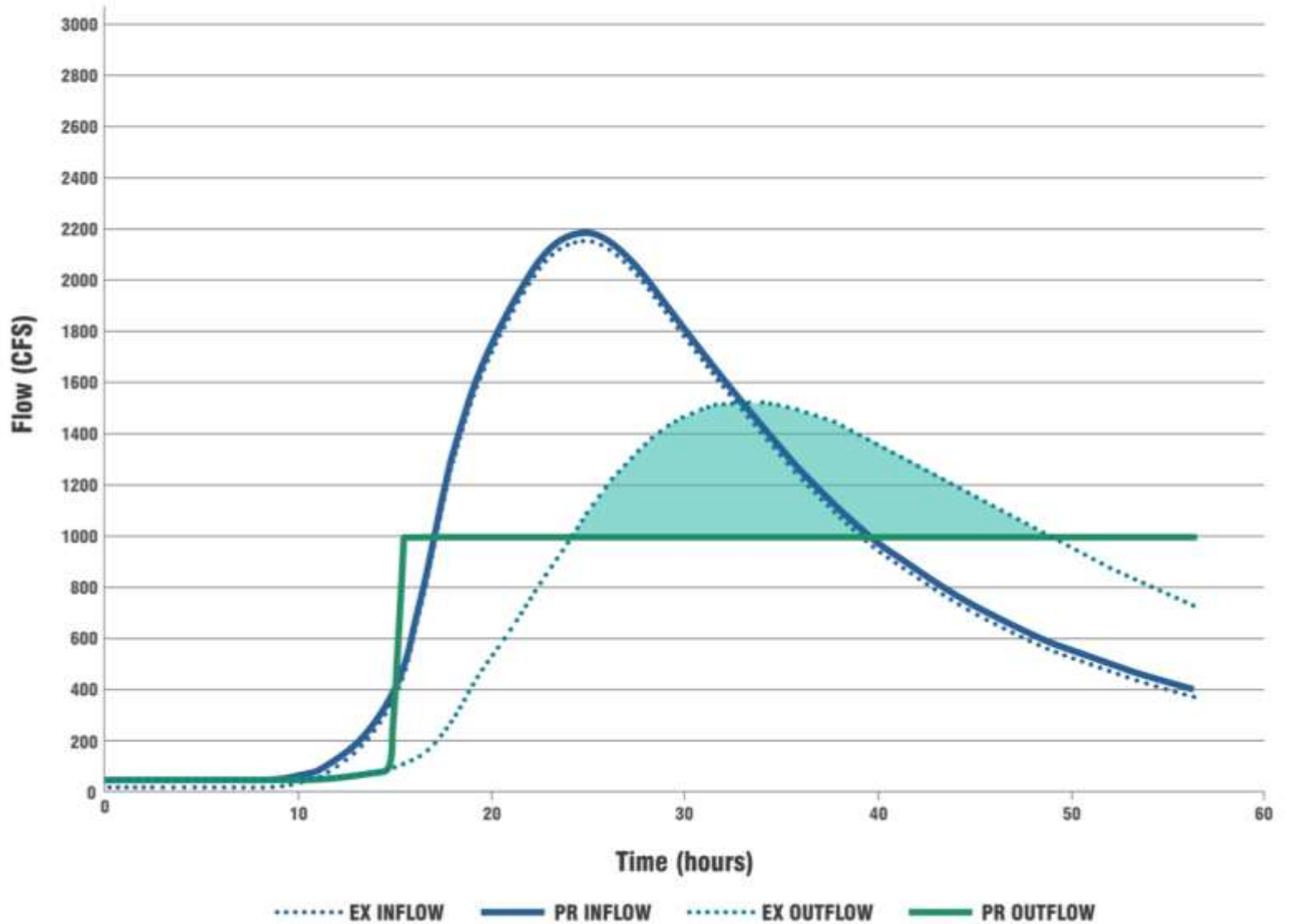
Result Summary Most Severe Historic Events: Elk Grove



DuPage FEQ Model-Combined Upper and Lower Salt Creek

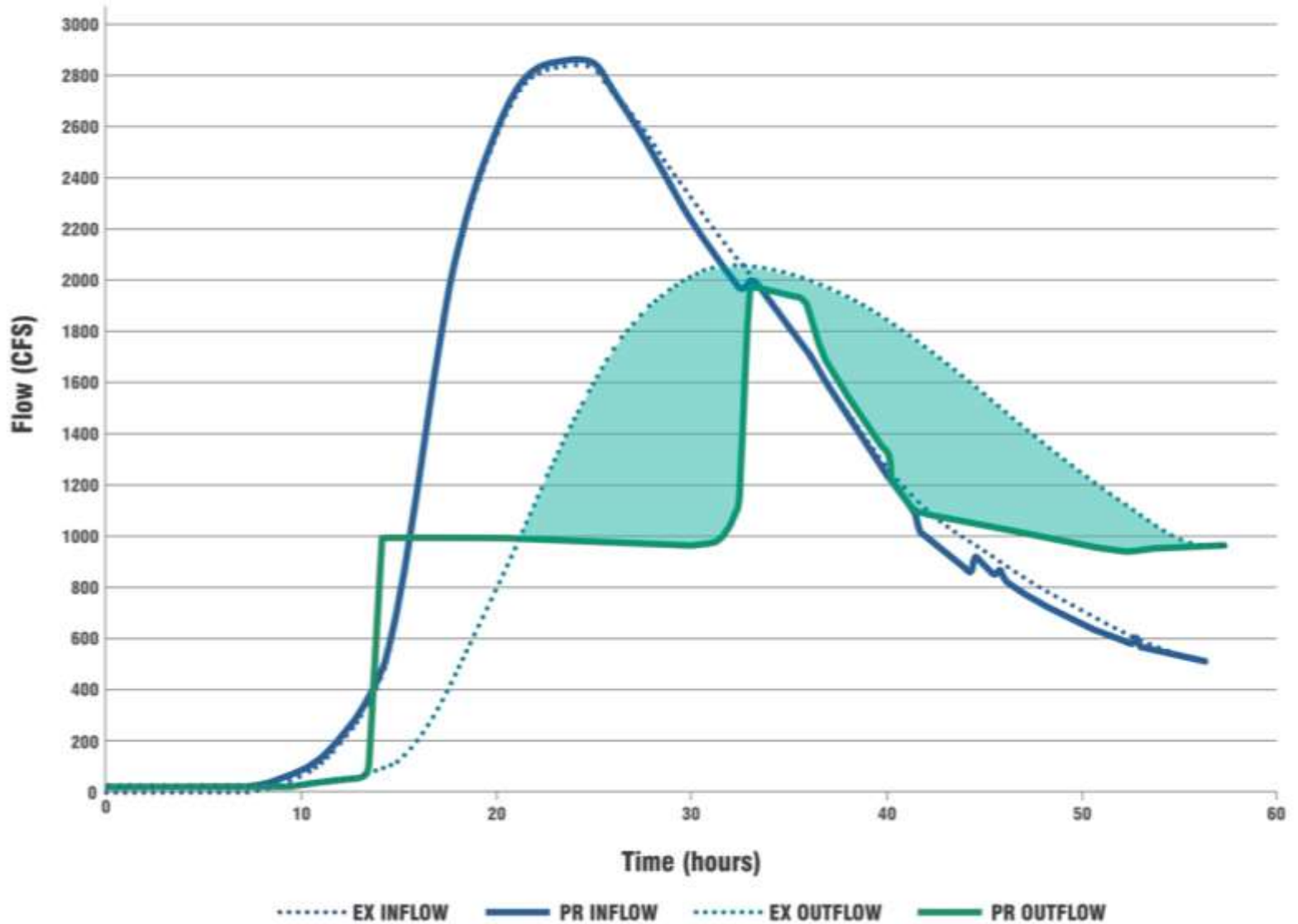


BUSSE WOODS ENVIRONMENTAL ASSESSMENT 10-YEAR COMPARISON





BUSSE WOODS ENVIRONMENTAL ASSESSMENT 25-YEAR COMPARISON





Busse Woods Reservoir Historic Storms

- In 37 of 158 Historic Storms - Damaging Flooding Occurred at Arlington Heights Road
- The Gates Reduced Depth and Duration of Flooding for all 37 Events
- The Gates Reduced Flooding Below Damaging Levels in 20 out of the 37 Historic Events (at Arlington Heights Road)



Result Summary Duration –Traffic/Access/Commerce

- **158 Historic Storms Analyzed**
- **Cumulative Duration Above Elevation 688.0 from 3272 Hours in the Existing Conditions to 1390 Hours in the Proposed Conditions**
- **Reduce impacts at 4-major intersections**
 - **3-schools and 2-churches**
 - **Access for 18 homes and 107-units of condos and apartments**
 - **48,000 vehicle-trips per day**
 - **Dollar-equivalent valuation of up to \$2,700,000**

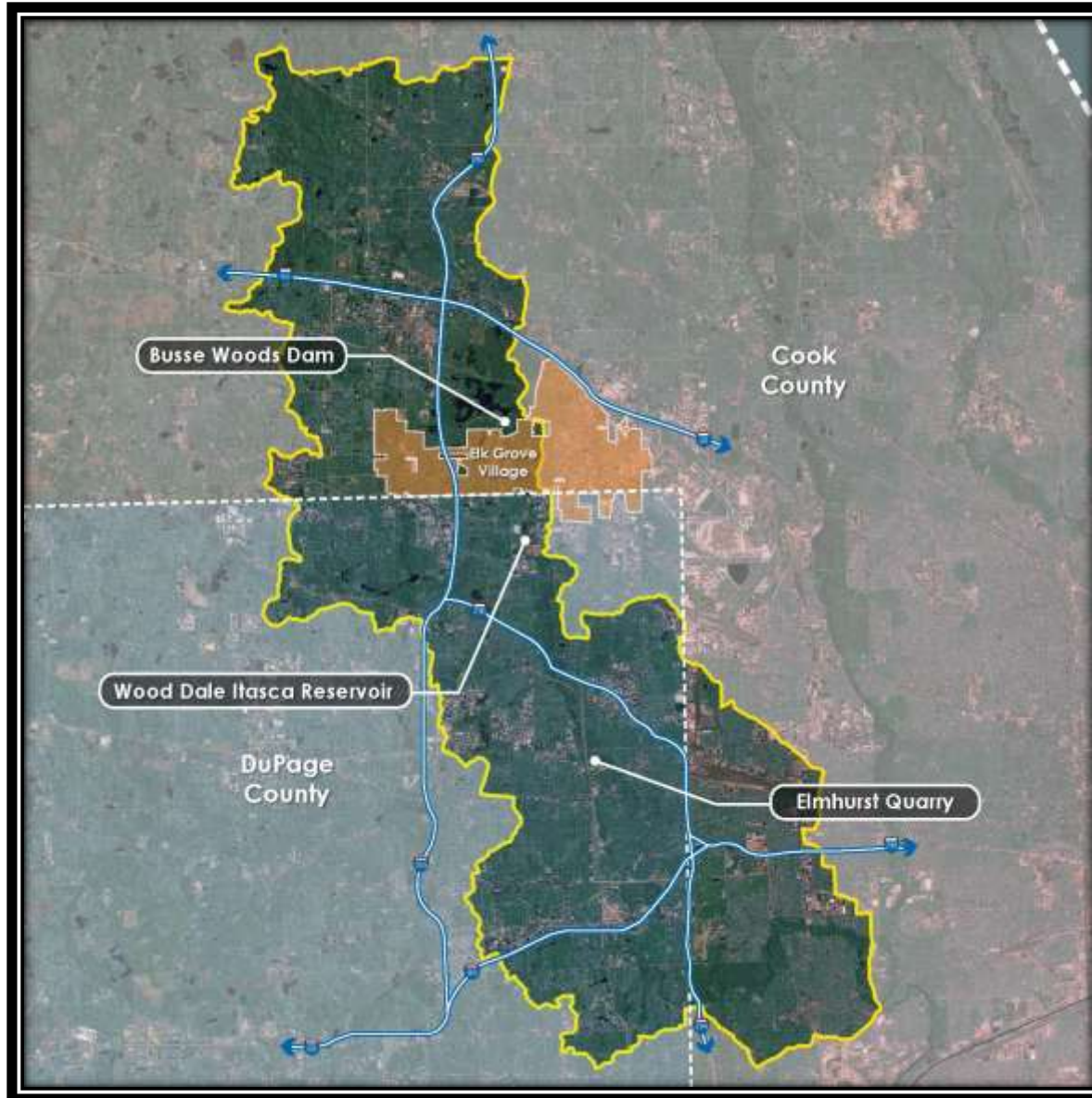


Approvals

- NRCS- Dam Safety Analysis- **Complete**
- NRCS/IDNR/County/Village-Emergency Action Plan- **Draft Under Review**
- NRCS-Environmental Assessment (EA)-**Complete (Draft out for public comment)**
- IDNR Dam Safety- **Complete(Waiting for permit)**
- USACE-**Complete(waiting for SWCD field meeting)**
- INPC-**Complete (waiting for IGA)**
- **Final Plans-Submitted for Review**
- **IGA- Elk Grove and FPD agreed, under IDNR Review**



Watershed Scale Effects





Questions

