Presentation
to the

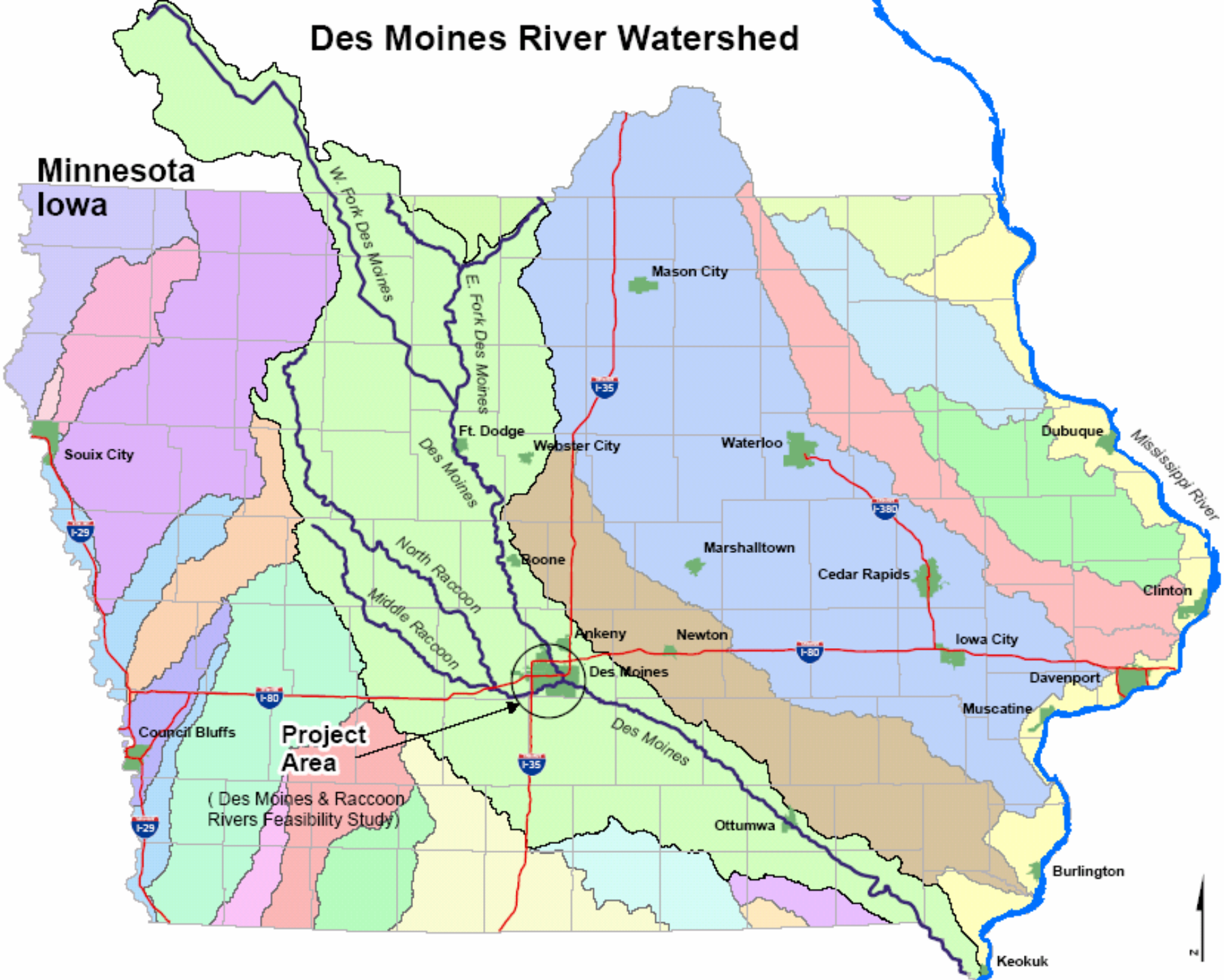
Civil Works Review Board

Des Moines & Raccoon Rivers Flood Damage Reduction Feasibility Study

Major (P) Melody Smith, Acting Commander
Army Corps of Engineers Rock Island District

October 18, 2005

Des Moines River Watershed



Saylorville Reservoir
Birdland Area
Central Place Area
Downtown Area
Des Moines River
Raccoon River
Des moines iowa
Aurora Ave
Madison Ave
Urbandale Ave
University Ave
Guthrie Ave
E Grand Ave
Dean Ave
Scott Ave
Oakwood Dr
Hartford Ave
State Hwy 46
Fleur Dr
Williams St
35
69
80
6
235
163
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1993 Flooding

Des Moines, Iowa

Downtown East, West & South

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1993 Flooding
Des Moines, Iowa

Birdland Park

Central Place

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Summary of Recommended Plan

The recommended plan is comprised of 5 reaches

- Reconstructing & Raising Birdland Park & Central Place Levees
- Improving 19 closures in downtown levee system
- Recreational trail on Birdland Levee
- Estimated cost = $10.1 million
- Benefit-to-Cost Ratio = 2.5
- Net Annual Benefits = $ 1 million

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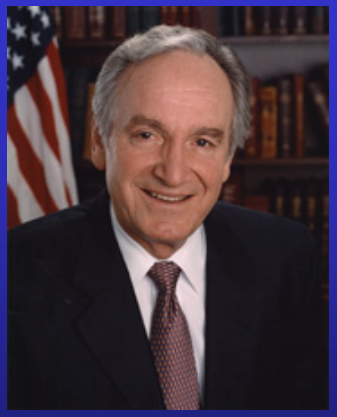
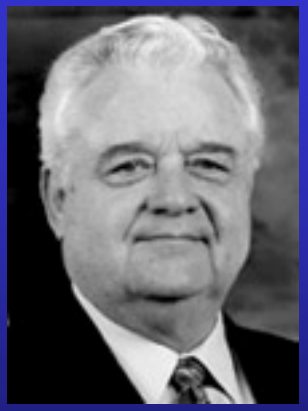
Project Study Authorization

"Resolved by the Committee on Public Works of the House of Representatives, United States, that the Board of Engineers for Rivers and Harbors be, and is hereby, requested to review the reports on the Des Moines River, contained in House Document 651, 78th Congress, with particular reference to the Upper Des Moines River and the tributaries thereof, to determine the feasibility and justification of improvements for flood control and related purposes." (Adopted July 1, 1958)

Support for the Project

- City of Des Moines, Iowa (Project Sponsor)
- Senators Tom Harkin & Charles Grassley
- Congressman Leonard Boswell (IA-3)





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Partnerships & Contributors

- City of Des Moines Iowa (Sponsor)
- Polk County Conservation Board
- U.S. Fish & Wildlife Service
- Iowa Department of Natural Resources

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Planning Process (ER 1105-2-100)

1. Specify problems & opportunities
2. Inventory & forecast conditions
3. Formulate alternative plans
4. Evaluate effects of alternative plans
5. Compare alternative plans
6. Select recommended plan

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Existing Conditions

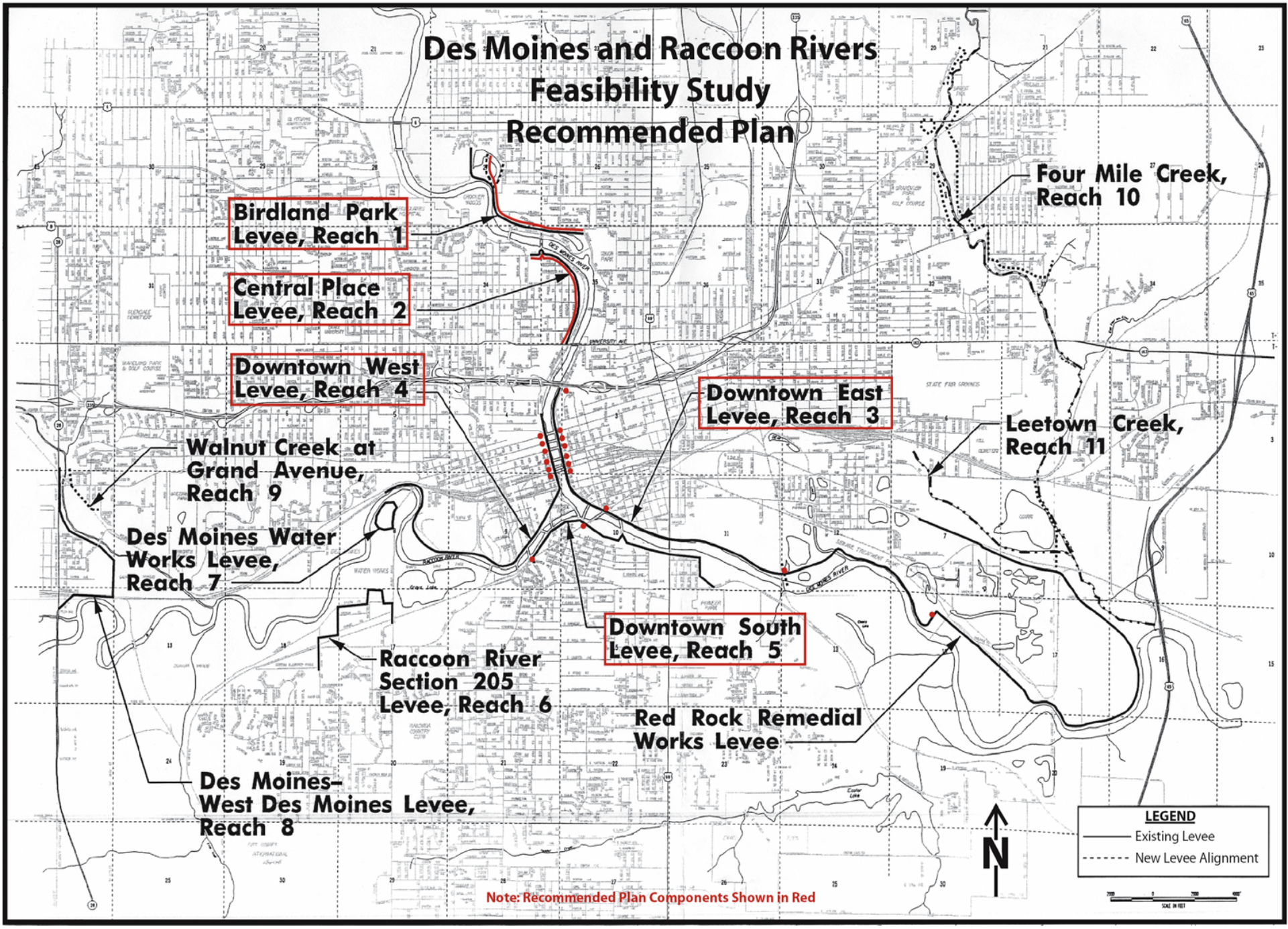
- 500-year event flood damages = $326 million
- Residential parcels = 856
- Commercial parcels = 651
- Public parcels = 21

Alternative Plans

Evaluated:

- **Flood damage reduction measures at 11 reaches**
- **Ecosystem restoration**
- **Recreation**

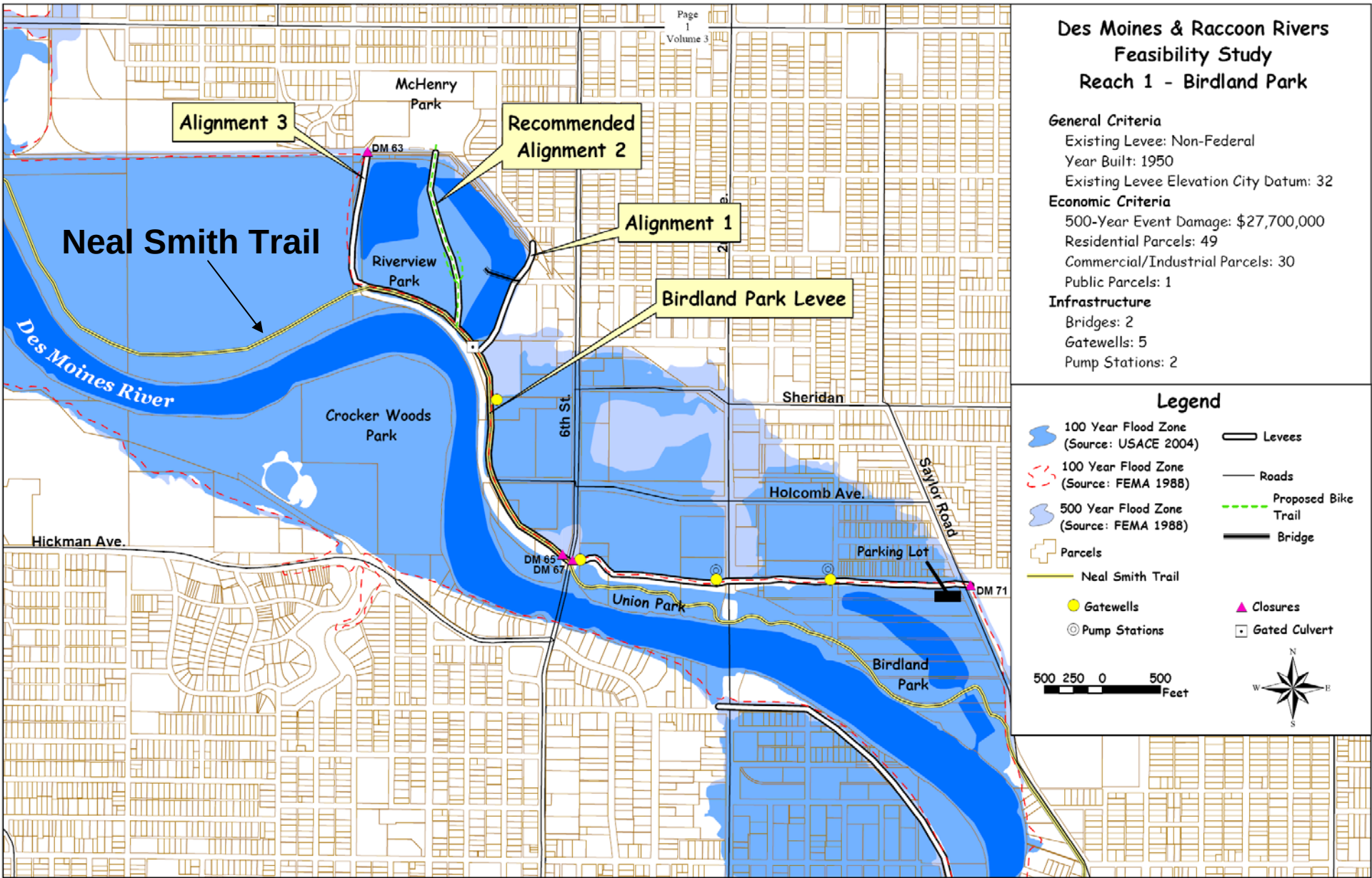
Combined feasible reaches into a single recommended plan.


Des Moines and Raccoon Rivers
Feasibility Study
Recommended Plan
Birdland Park Levee, Reach 1
Central Place Levee, Reach 2
Downtown West Levee, Reach 4
Downtown East Levee, Reach 3
Downtown South Levee, Reach 5
Four Mile Creek, Reach 10
Leetown Creek, Reach 11
Walnut Creek at Grand Avenue, Reach 9
Des Moines Water Works Levee, Reach 7
Raccoon River Section 205 Levee, Reach 6
Red Rock Remedial Works Levee
Des Moines–West Des Moines Levee, Reach 8
N
LEGEND
Existing Levee
New Levee Alignment
Note: Recommended Plan Components Shown in Red

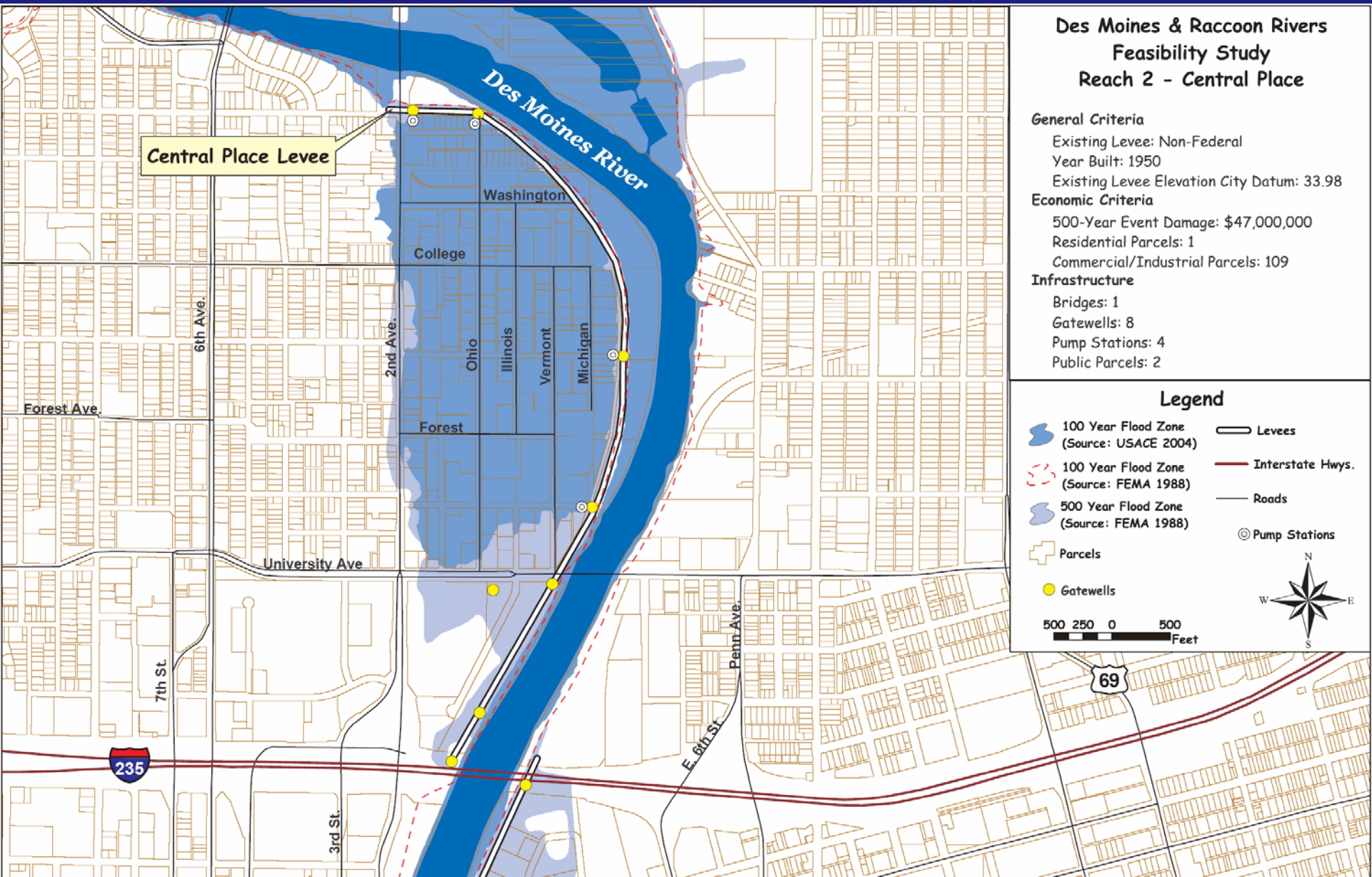
Measures Screened from Further Consideration

- Reservoirs
- Channel modification & bypass channels
- Non-structural measures
- Ecosystem restoration

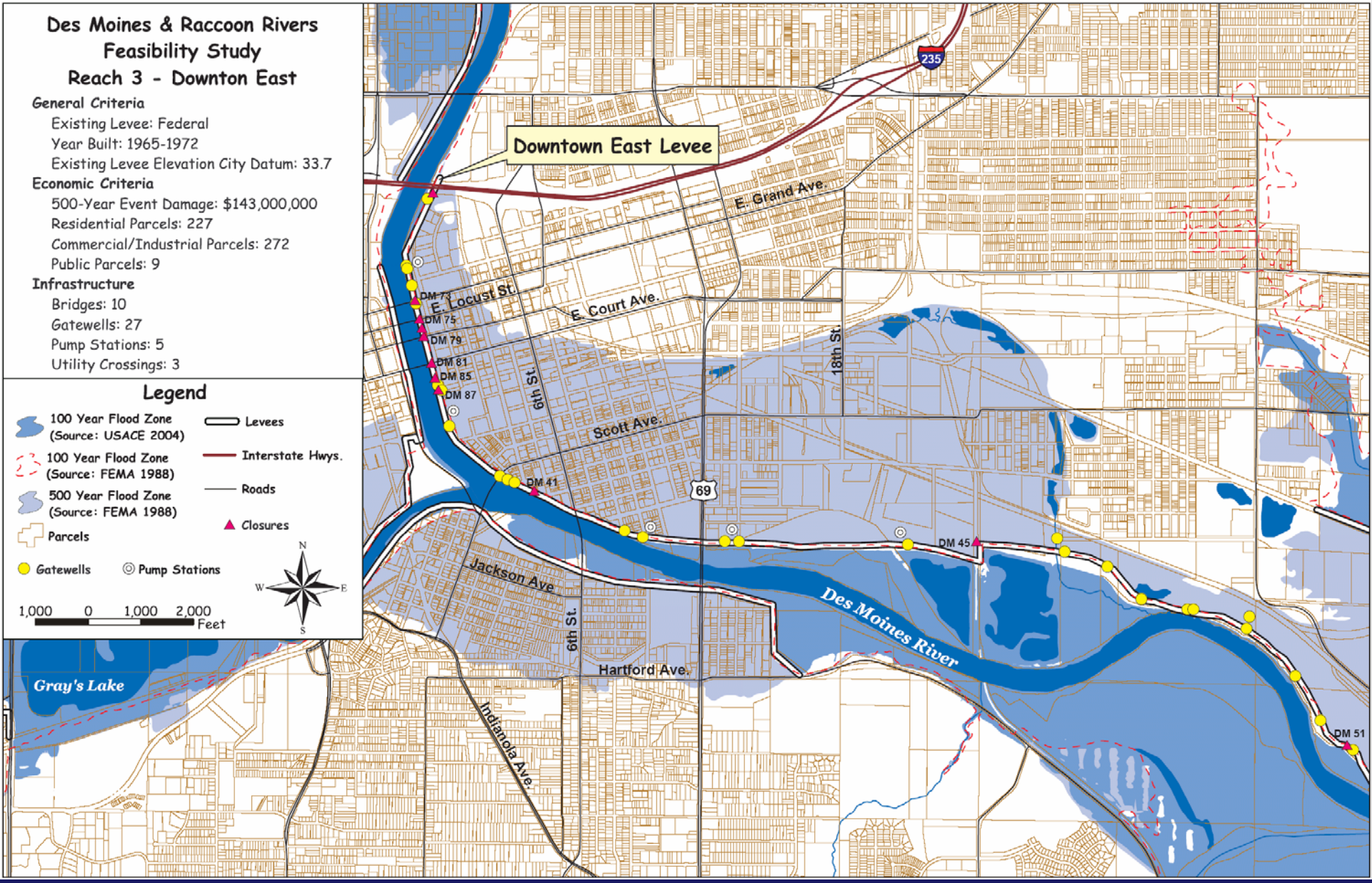
Birdland Park Levee – Reach 1



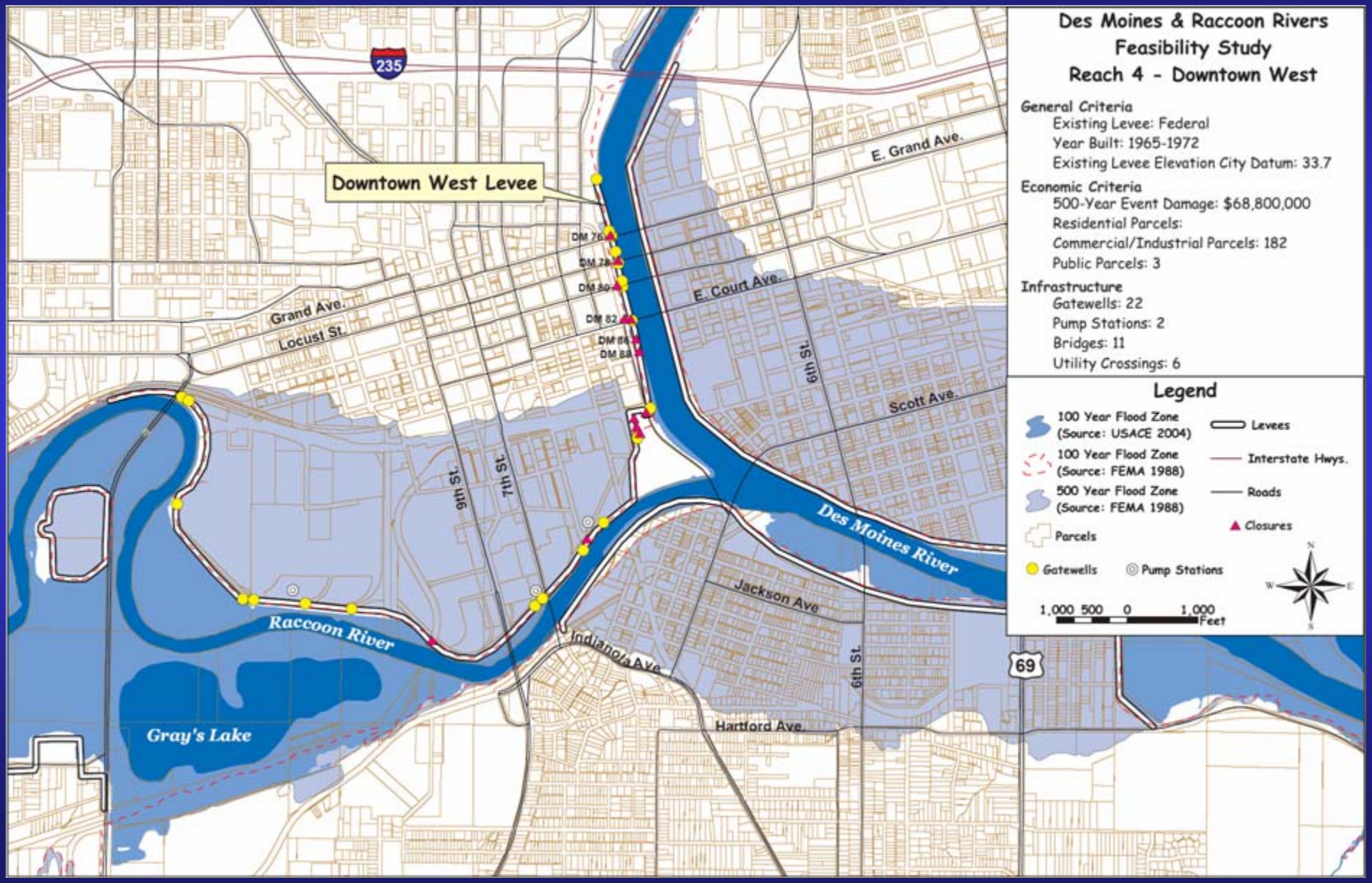
Central Place Levee – Reach 2



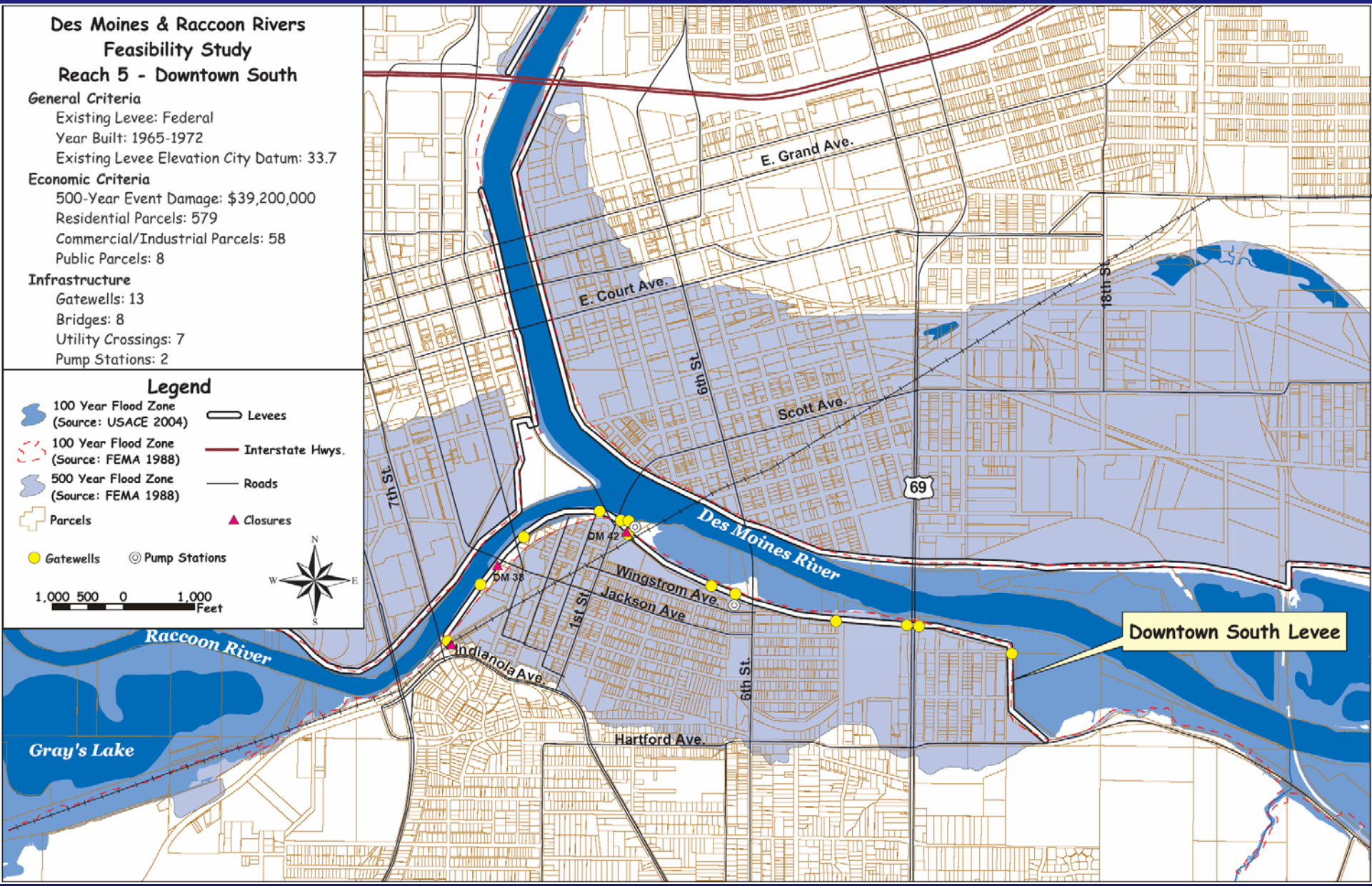
Downtown East Federally-Constructed Levee – Reach 3



Downtown West Federally-Constructed Levee – Reach 4



Downtown South Federally-Constructed Levee – Reach 5



Des Moines & Raccoon Rivers
Flood Damage Reduction
Feasibility Study Project Costs & Benefits

	Project Cost Estimates	Total Annual Costs	Total Annual Benefits	Benefit-to-Cost Ratio	Net Annual Benefits
Birdland Park 500-year Levee	5,012,000	342,000	440,000	1.3	98,000
Birdland Park Recreation Trail	244,000	17,000	117,000	7.1	100,000
Central Place 500-year Levee	3,863,000	265,000	901,000	3.4	636,000
Downtown East Closure Improvements	647,000	41,000	157,000	3.8	116,000
Downtown West Closure Improvements	262,000	17,000	74,000	4.5	58,000
Downtown South Closure Improvements	31,000	2,000	30,000	15.3	28,000
	10,059,000	684,000	1,719,000	2.5	1,036,000
5-5/8%Discount Rate, 50-Year Evaluation Period					

Cost Share Summary

Estimated Implementation Costs: (October 2004 price level)	
Federal	
Flood damage reduction (65%)	$6,380,000
Recreation (50%)	$122,000
Corps of Engineers – total	$6,502,000
Non-Federal	
Flood damage reduction (35%) [1]	$3,435,000
Recreation (50%)	$122,000
City of Des Moines – total	$3,557,000
Total	**$10,059,000**
[1] $963,000 of this amount is LERRD credit and the remainder is cash	

Implementation Schedule

Action Item	Estimated Completion Date
Chief of Engineer's Report	Dec-05
Congressional Authorization and Appropriations	Sep-06
Execute Project Cooperative Agreement (PCA)	Jan-05
Complete Plans & Specifications	Jun-08
Real Estate Acquisition	Aug-08
Start Construction Contract	Nov-08
Complete Construction	Nov-10

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Policy & Technical Review Process

• In-Progress Review	Dec 2003
• Value Engineering (St. Paul District)	Mar 2004
• Formal Independent Technical Review (St. Paul District)	Nov 2004
• Alternative Plan Formulation Briefing (AFB)	May 2005
• HQ Policy/Report Review	Sep 2005

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Systems/Watershed Context

- Study area limited to the Des Moines city limits
- No systemic alternatives were identified
- Recommended Plan has no significant impacts to the watershed or ecosystem
- The plan was coordinated with Iowa DNR and USFWS
- The project enhances the current land uses in the watershed

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Environmental Operating Principles

- Provided opportunity for public & stakeholders to have input
- Carefully considered their views
- Environmental consequences considered
- Unavoidable impacts mitigated

Public Review Process

- Newsletters
- Public meetings
- Project website with reports & presentations
- Formal public review

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Independent Technical Review Comments

- St. Paul District performed ITR & VE
- No significant issues were identified
- All comments are resolved

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Policy Guidance Memo

Documentation of analyses

- HTRW clearance
- Endangered species clearance
- Incremental cost analysis for mitigation plan

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PDT Performance

- Performed well under challenging conditions
  - Stop & start due to funding constraints
  - Changes in personnel
- Identified & addressed problems early in the study process
- Frequent communication, including team meetings

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Questions & Comments

City of Des Moines

The Des Moines Register

RECORD FLOOD LEVELS IN IOWA

Health PACs gave millions to Congress

"I've seen a lot of disasters, but this is the biggest and widest-spread disaster I think we've ever had." – Gov. Branstad, July 7, 1993

Human Impacts

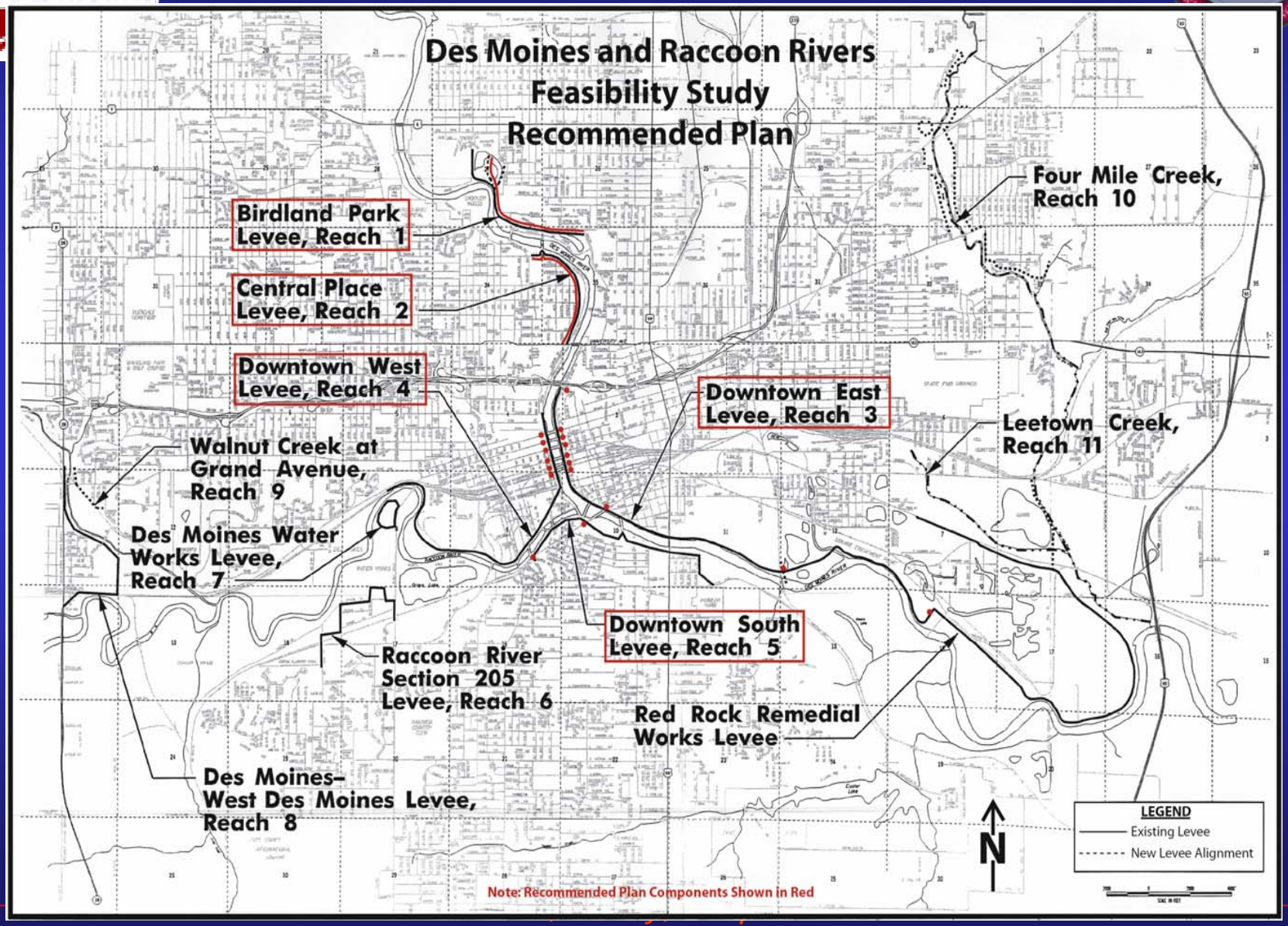
Flood Fighting

DAVID PETERSON/THE REGISTER

National Guard troops charge to the top of a Des Moines River levee near Southeast Eighth Street in Des Moines. The Guard helped shore up the levee, which was in danger of breaking.

Community Effort

Looking Toward the Future



Presentation
to the

CIVIL WORKS REVIEW BOARD

Des Moines and Raccoon Rivers Flood Damage Reduction Feasibility Study

by

Michael B. Rogers
Director of Programs
Mississippi Valley Division

October 18, 2005

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Rationale for MVD Support

- Concur with MVR Commander's findings and recommendations
- Report complies with all applicable policies and laws in place at this time
- Anticipate a favorable response to the draft Chief's Report
- Plan supported by sponsor and congressional delegation

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Certification of Legal and Policy Compliance

- Legal certification by MVR Counsel on 20 Sep 2005
- Technical and policy compliance:
  - MVP performed ITR
  - All ITR comments resolved
  - MVP ITR Team certified on 4 April 2005
  - MVR study team certified on 27 Sep 2005

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MVD Quality Assurance Activities

- MVD reviewed ITR comments/responses to ensure appropriate resolution
- Active participation by vertical team
- Worked with MVR to successfully resolve HQ review comments
- MVR certified that project is technically, legally, and policy complaint
- MVD concurs that project is technically, legally, and policy complaint

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MVD Recommendation

- Approve Final Feasibility Report
- Release report for State and Agency Review
- Complete Chief's Report NLT 31 Dec 05 to meet contingent authorization

Civil Works Review Board

Significant Policy Review Concerns

Des Moines and Raccoon Rivers Project
Des Moines, Iowa

Cynthia Jester
Office of Water Project Review
Policy and Policy Compliance Division

Washington, DC – October 18, 2005

HQUSACE Policy Compliance Review Team RECOMMENDATION

Release the report and EA for S&A Review

Areas of Policy Concern:

- HTRW
- Threatened and Endangered Species
- Incremental Cost Analysis for Mitigation Plan
- NEP Plan vs LPP

HTRW

Concern: HTRW Assessment revealed slightly elevated levels of metals and benzo(a)pyrene in soil samples in Birdland Park, Central Place, Downtown West and Downtown East.

Reason: Construction of CW projects in HTRW-contaminated areas should be avoided if possible. If unavoidable, the non-Federal sponsor is responsible for any required response action.

Resolution: The non-Federal sponsor received a letter from Iowa Department of Natural Resources stating that due to the very low levels of contaminants, no further investigation of the site would be required.

Resolution Impact: Concern resolved

Threatened and Endangered Species

Concern: Draft report stated that there was the potential to affect Federal Threatened & Endangered species but that no determination was made. Ongoing coordination with USFWS.

Reason: Ongoing coordination is appropriate at this stage of study but issue of endangered species must be resolved prior to finalization of report.

Resolution: USFWS letter in final report states “no objection to selection of the preferred alternative”. The report has been modified and language regarding a “potential threat” has been removed from report because issue was resolved with USFWS.

Resolution Impact: Concern resolved

Incremental Cost Analysis for Mitigation Plan

Concern: Draft report did not present a standard incremental cost analysis for the proposed mitigation measures to be undertaken at the respective mitigation areas.

Reason: Guidance for CW projects requires evaluation of the cost-effectiveness of mitigation measures.

Resolution: An incremental cost analysis of different measures to incorporate all habitat outputs on the mitigation site was added to the Mitigation Plan.

Resolution Impact: Concern resolved

NED Plan vs LPP

Concern: The NED plan had not been identified and recommended in the draft report, as required in ER 1105-2-100.

Reason: NED plan must be identified and recommended unless the recommended plan qualifies for “Categorical Exemption”.

Resolution: The sponsor identified a desired maximum level of protection; residual risk is not unreasonably high; the plan desired by sponsor has greater net benefits than smaller scale plans and thus the recommended LPP satisfies the requirement for a “Categorical Exemption”. The report has been revised to correctly label the selected plan.

Resolution Impact: Concern resolved

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Lessons Learned

- Clear documentation of all analyses would have reduced comments
- Writing the report throughout the formulation process made draft report preparation less difficult
- Having another district perform the ITR improved the quality of the decision document

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MVD
Lessons Learned

- Clarity in reporting resolves many comments (e.g., HTRW, endangered species clearance, period of analysis)
- Comprehensive study authority provides more options than Section 216 analysis

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Summary of Project Briefing

Recommend Proceeding with State and Agency Review:

- **$10.1 million Recommended Plan with 2.5 BCR**
- **Strong support by the City of Des Moines**
- **Formulated using Corps principles and guidelines**
- **The plan is complete, acceptable, effective and efficient**