



# Public Informational Meeting

## Flood Control in Lowertown Jordan

May 22, 2019

Mike Waltman, P.E., City Engineer

Jordan Thole, P.E., C.F.M



## 1950s

- US 169 comes to Jordan
- Existing levees built along east bank of Sand Creek between 282 and Syndicate Street





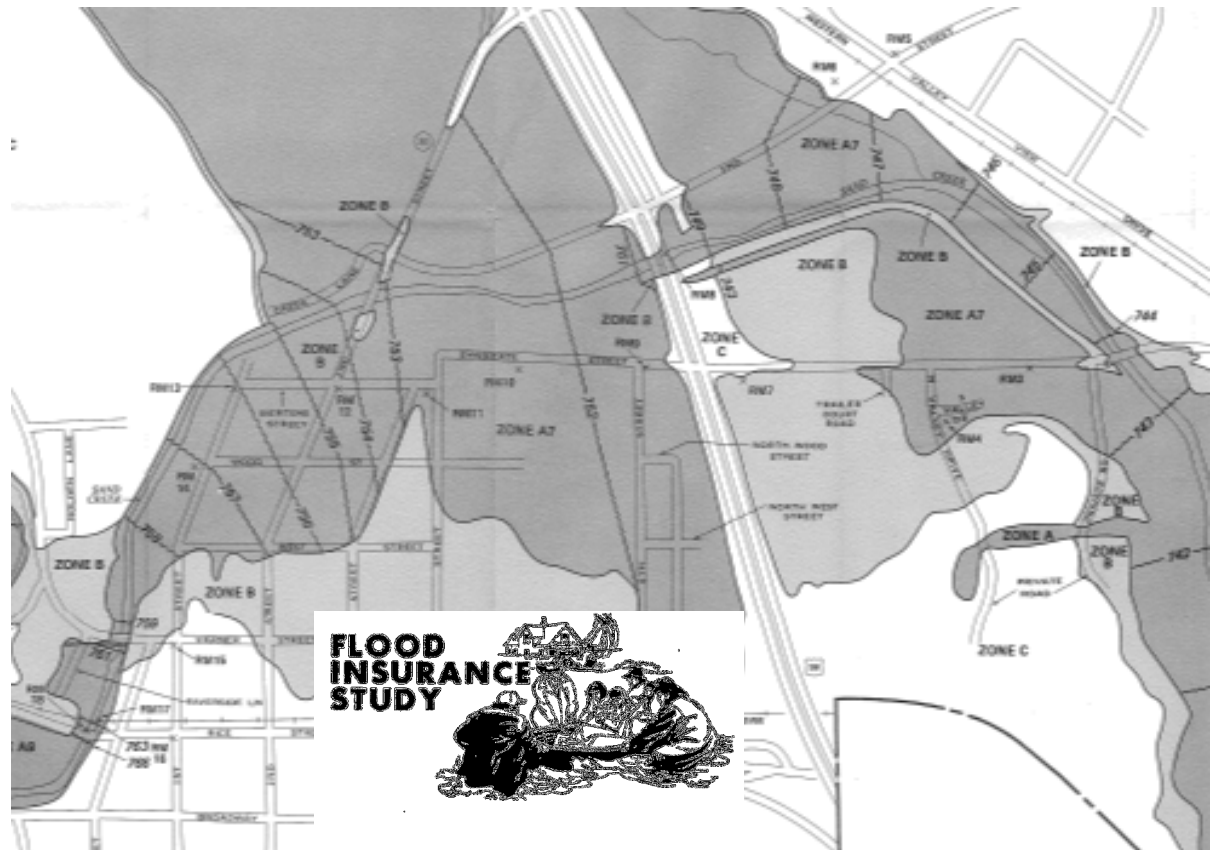
# Flood of 1960

- 7.61" of rain
- Approximately 1/3 of town flooded
- Highway 21 washed out
- First Street Bridge washed away
- 110 families displaced from homes
- Search YouTube "Jordan Flood of 1960" for more information



- Flood Insurance Study
- Adoption of the first floodplain boundaries in Jordan via FEMA's "Flood Insurance Rate Map"
- Jordan residents able to participate in the federal flood insurance program
- Floodplain regulations are implemented with benefits of insurance

# 1975 - 1982



CITY OF JORDAN,  
MINNESOTA  
SCOTT COUNTY



JULY 8, 1984



Federal Emergency Management Agency  
Federal Insurance Administration  
WASHINGTON, D.C. 20535



# 2003

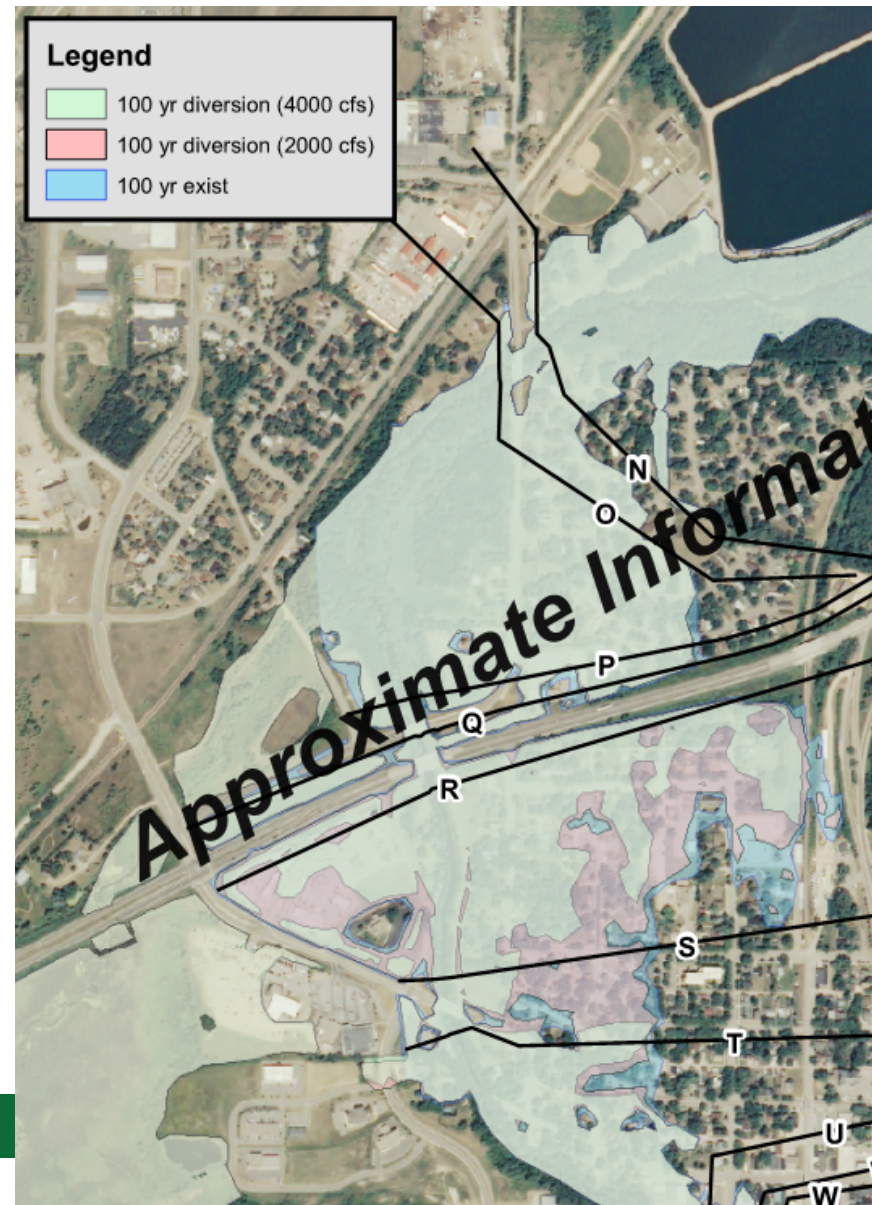
- **US Army Corps Initial Appraisal Report, Options Developed:**
  1. Improve the existing levees, build a large stormwater basin at the north end of the City, and pump stormwater over the improved levees
  2. Flood bypass to wetlands behind Wolf Motors
- Cost / Benefit ratios are calculated and documented
- **Conclusions:**
  - Option 1 was determined to not meet federal cost/benefit ratios to potentially receive funding
  - **Option 2 recommended for further evaluation**





## 2009 - 2011

- **US Army Corps Section 205 Report** studying flood bypass alternatives
- Early in the study, options are determined infeasible and not locally supported.
- Study is abandoned in 2009 and final documentation produced in 2011.



# Flood Impacts

- If a 100 year flood event happened 361 structures would be inundated
- Properties in the floodplain cannot be improved by more than 50% of their value
- New development must be completed compatible with costly floodplain regulations
- Jordan property owners currently pay \$145,000 annually in flood insurance premiums...which are rising
- What will happen with properties that don't pay flood insurance, if they flood?



# Recent Initiatives

## 2015 - 2017

- City identified apparent errors in FEMA flood mapping, which would have raised estimated flood elevations by 1.5' to 3'
- City appealed FEMA's mapping, and developed it's own model using FEMA's approved software
- FEMA accepted City's appeal
- Revised FEMA mapping anticipated to be enacted in 2019





# Recent Initiatives

February 6, 2017

- City Council adopted five flood protection goals:
  1. Levee Construction and Accreditation Feasibility Study
  2. Develop a defined flood diversion and promote storage in the wetland complex behind Wolf Motors
  3. Investigate bridge crossings for efficiency
  4. Enroll the City in the Community Rating System (CRS) program
  5. Work with the Scott County WMO to install gages along Sand Creek to measure flows over time to improve flood frequency estimates



# Recent Initiatives

## 2018

- City Staff secures \$50,000 in grant funding from the MnDNR for a flood control feasibility study
- City Staff secures \$50,000 in grant funding from the Scott WMO for a flood control feasibility study
- City Council approves completion of a flood control feasibility study with approximately \$50,000 in matching funds



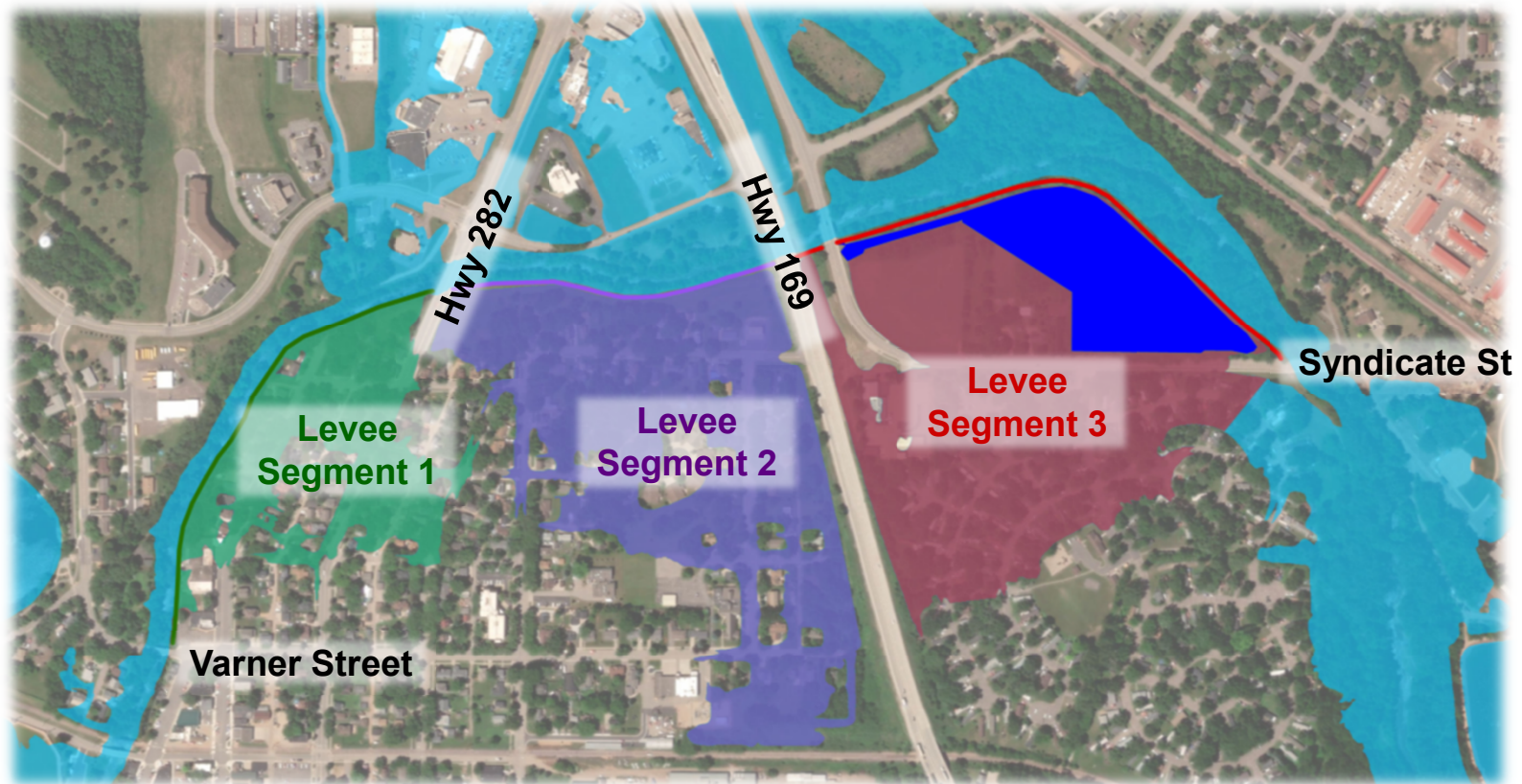
# 2018 Flood Control Feasibility Study

1. Modeling of Sand Creek during to runoff flooding to evaluate:
  - Increasing bridge capacity to convey heavy runoff events
  - Two alternative floodwater bypasses systems to convey excess runoff that does not fit within the Sand Creek channel
  - Three segments of certified levies Cost estimating of the modeled alternatives
2. Evaluation of property impacts due to improvements
3. Sizing of three alternative stormwater ponds behind levees
4. Estimating costs of the various alternatives
5. Identification of properties that would benefit from the flood control solution and flood insurance relief

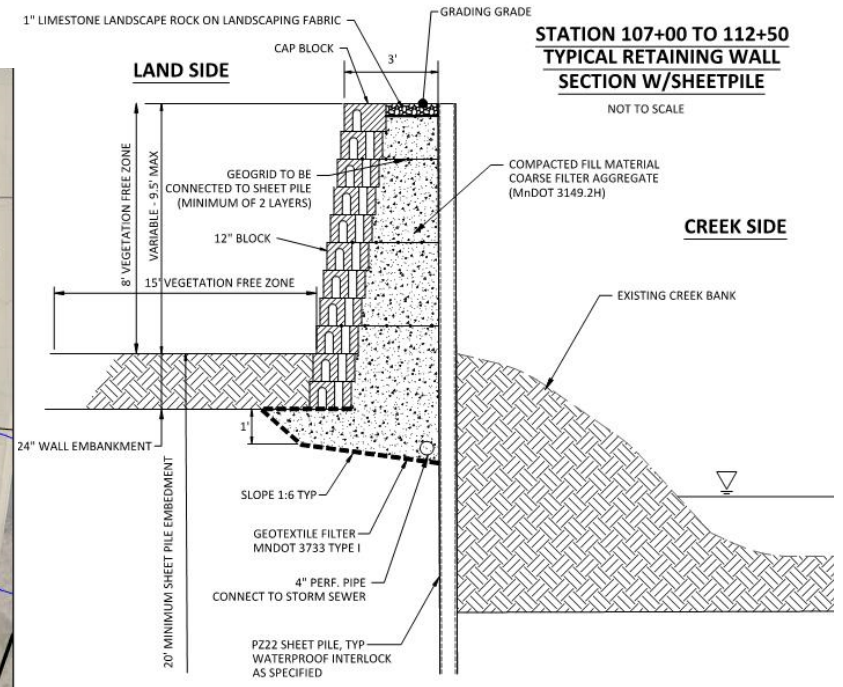
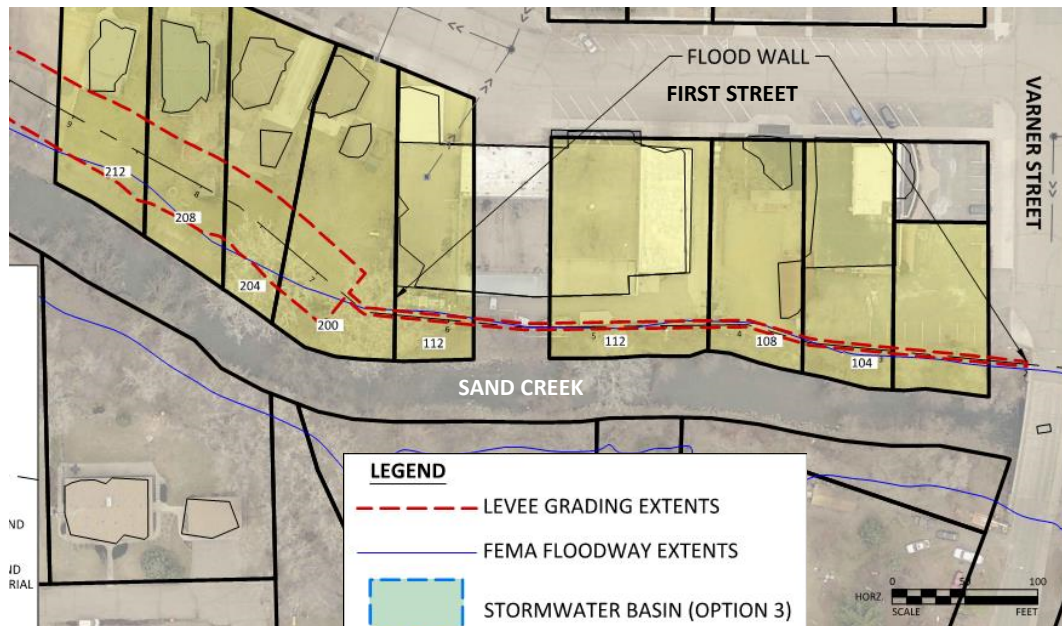




# Proposed Levee Sections 1, 2, & 3

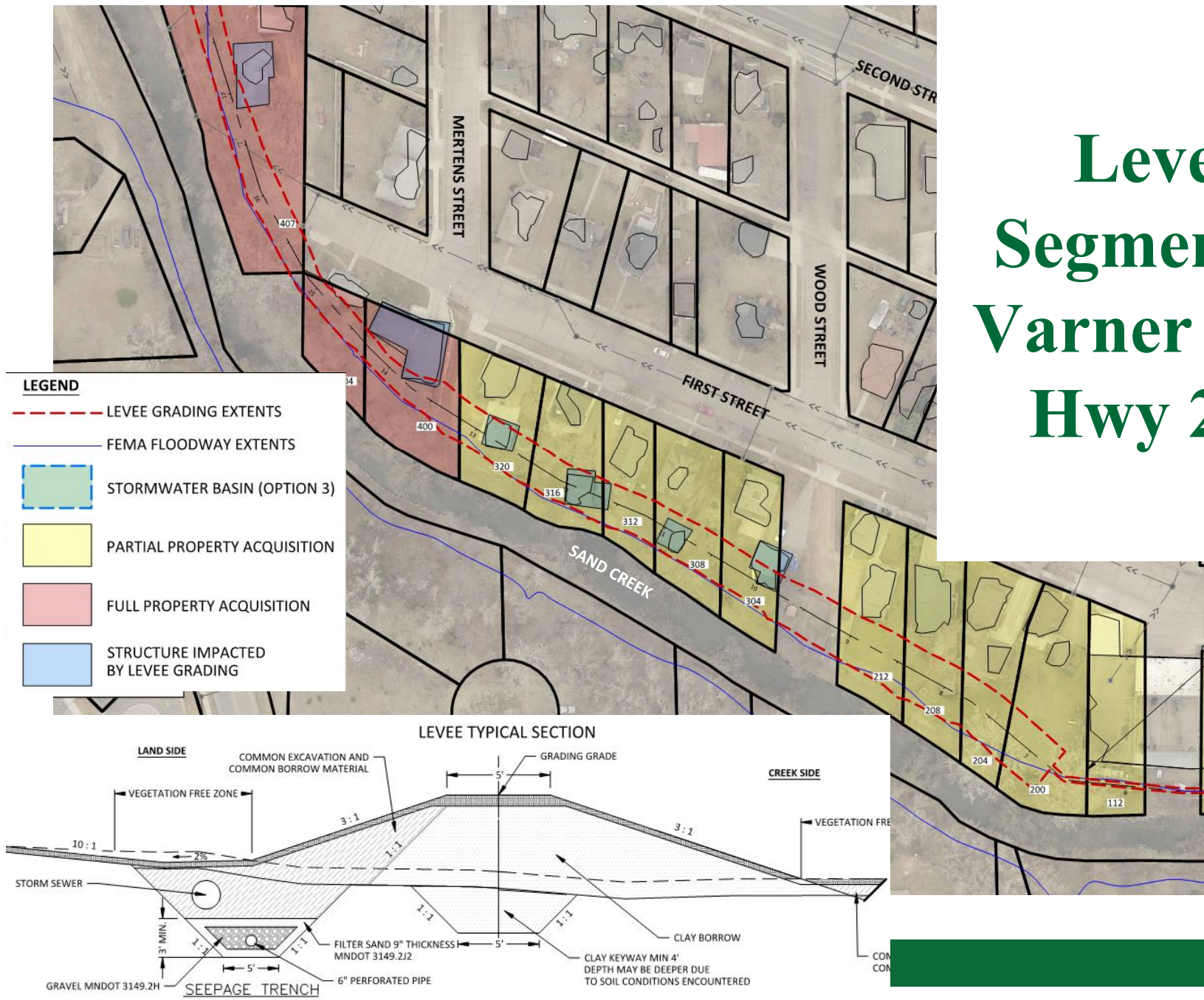


# Levee Segment 1: Varner St to Hwy 282



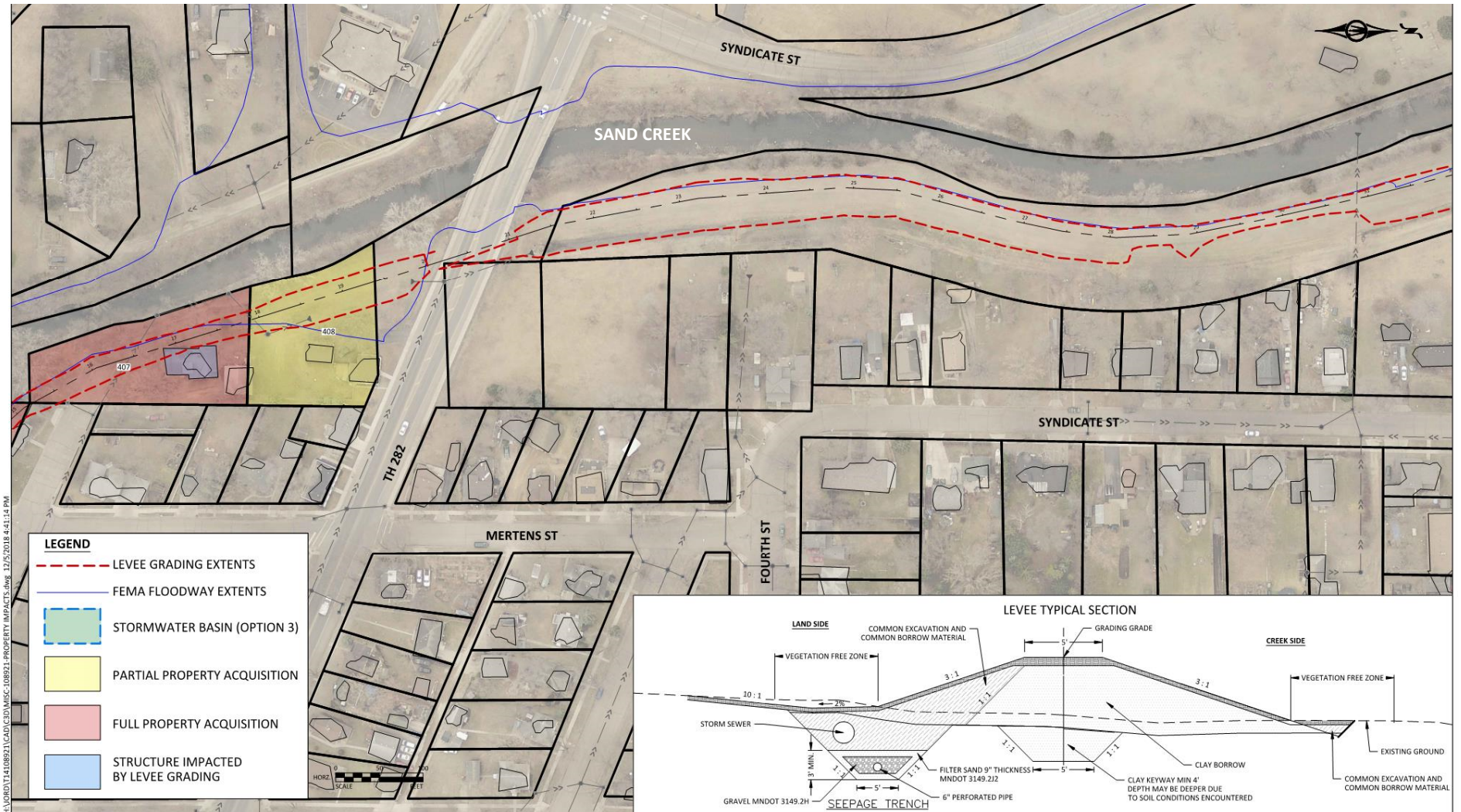


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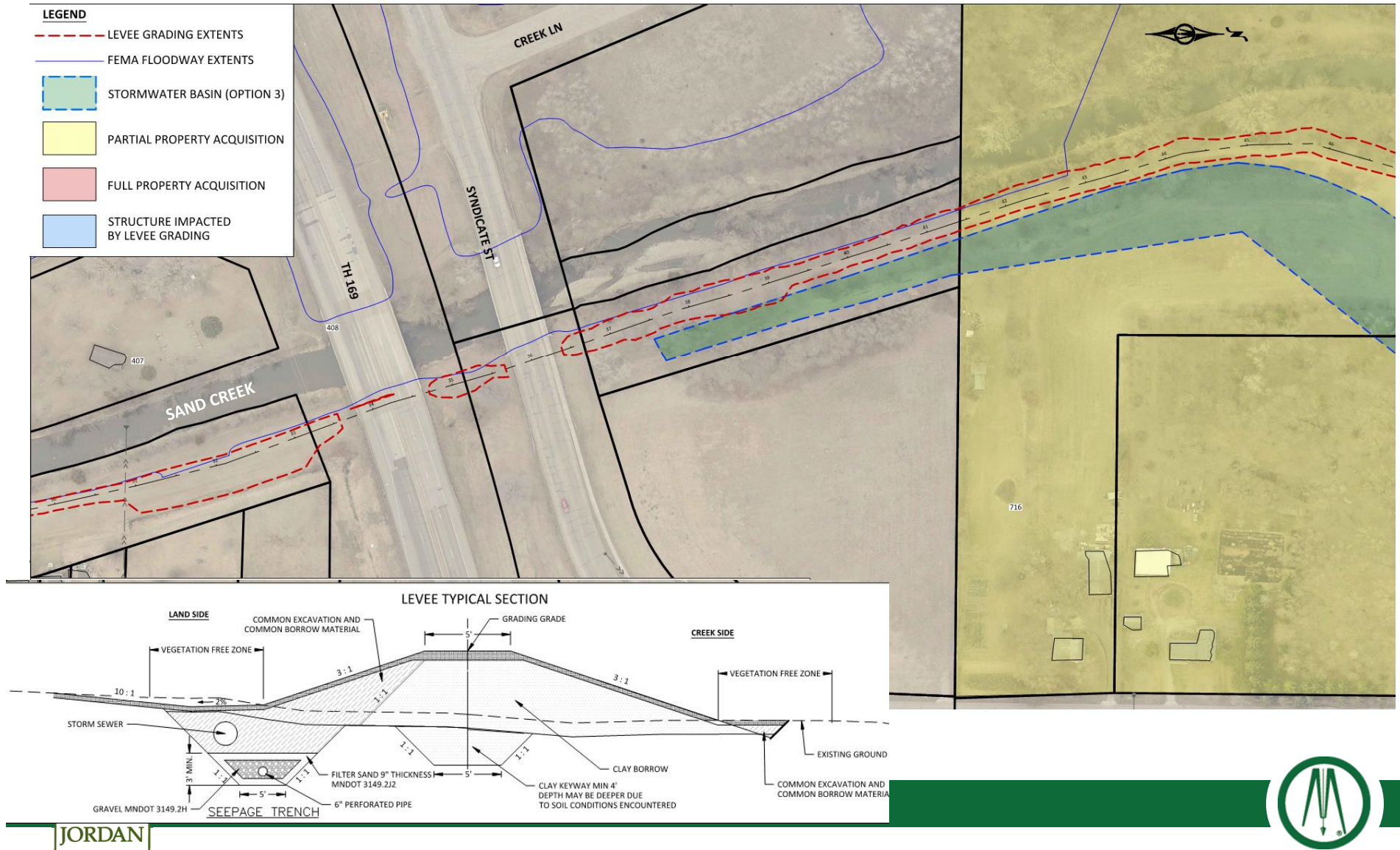


# Levee Segment 2: Hwy 282 to Hwy 169

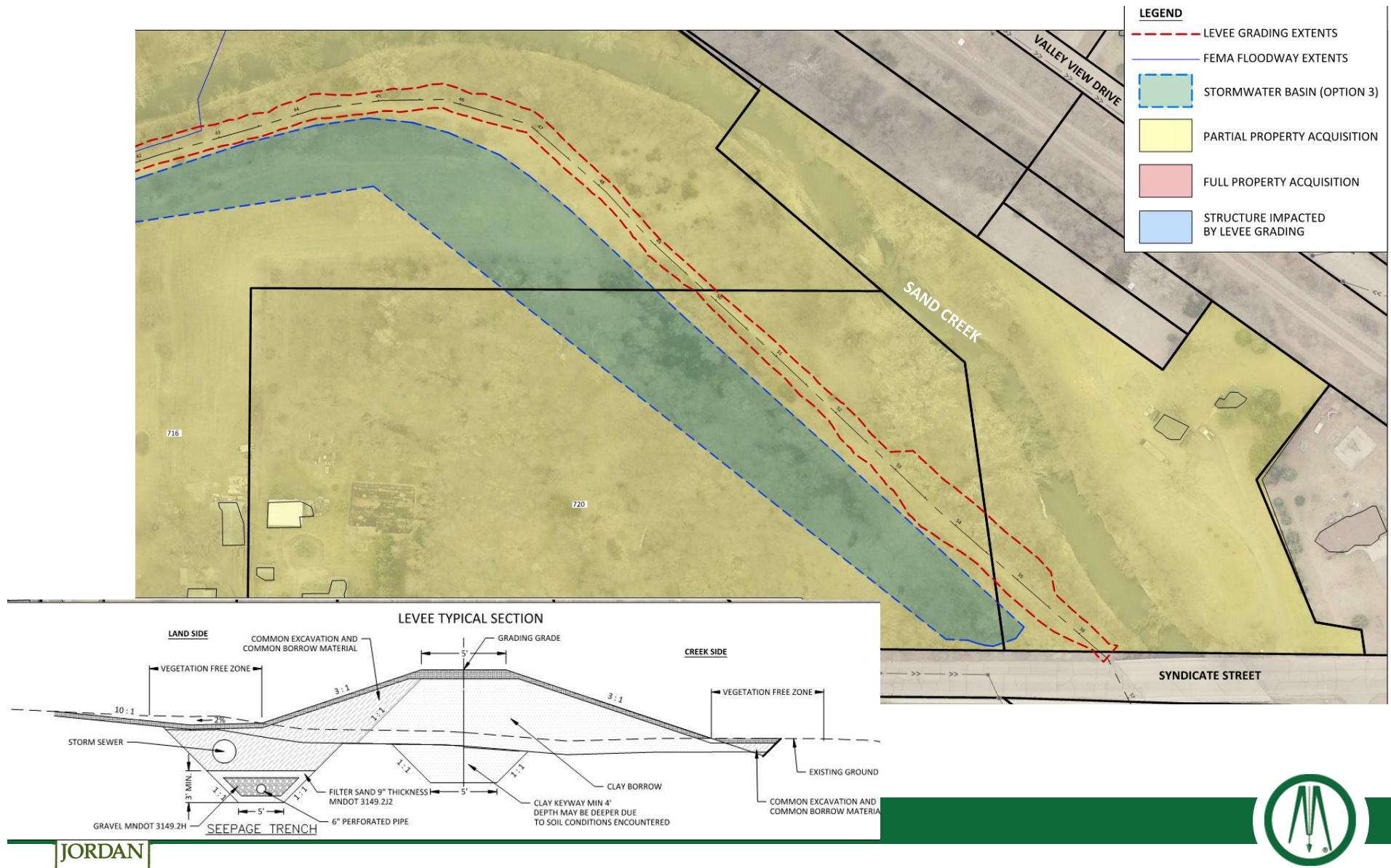




# Levee Segment 3: Hwy 169 to Syndicate St



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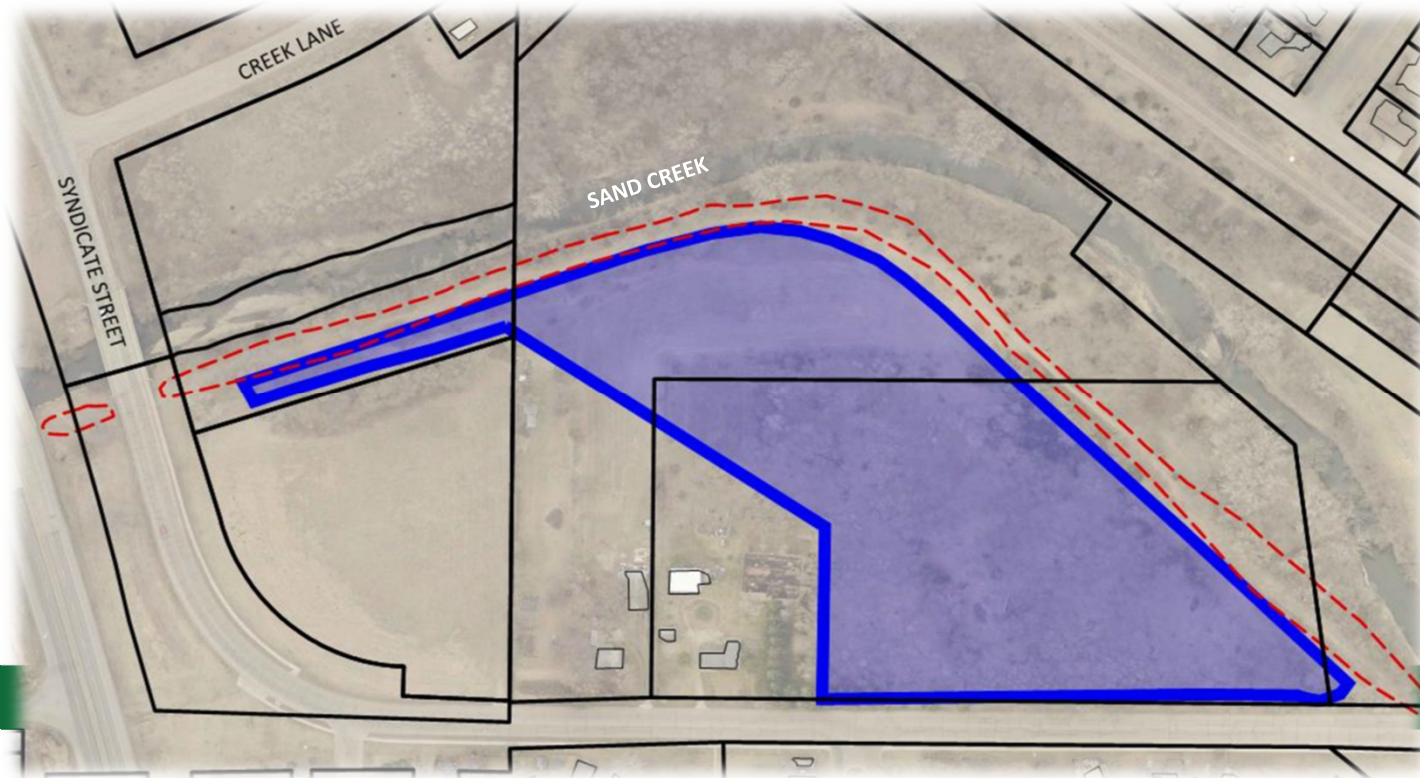




# Internal Drainage

Internal Drainage Pond Options				
	Footprint (ac)	Storage Volume (ac-ft)	Excavation Volume (CY)	Pump Requirements (gpm)
Option 1	8.2	33	47500	N/A
Option 2	6.8	22	40000	20000
Option 3	3.1	9	17000	30000

- Ponding & storm sewer required to manage City stormwater runoff when Sand Creek is at flood stage
- Does not hold Sand Creek floodwater



# Potential Uses for Dry Pond

## Allowable Uses:

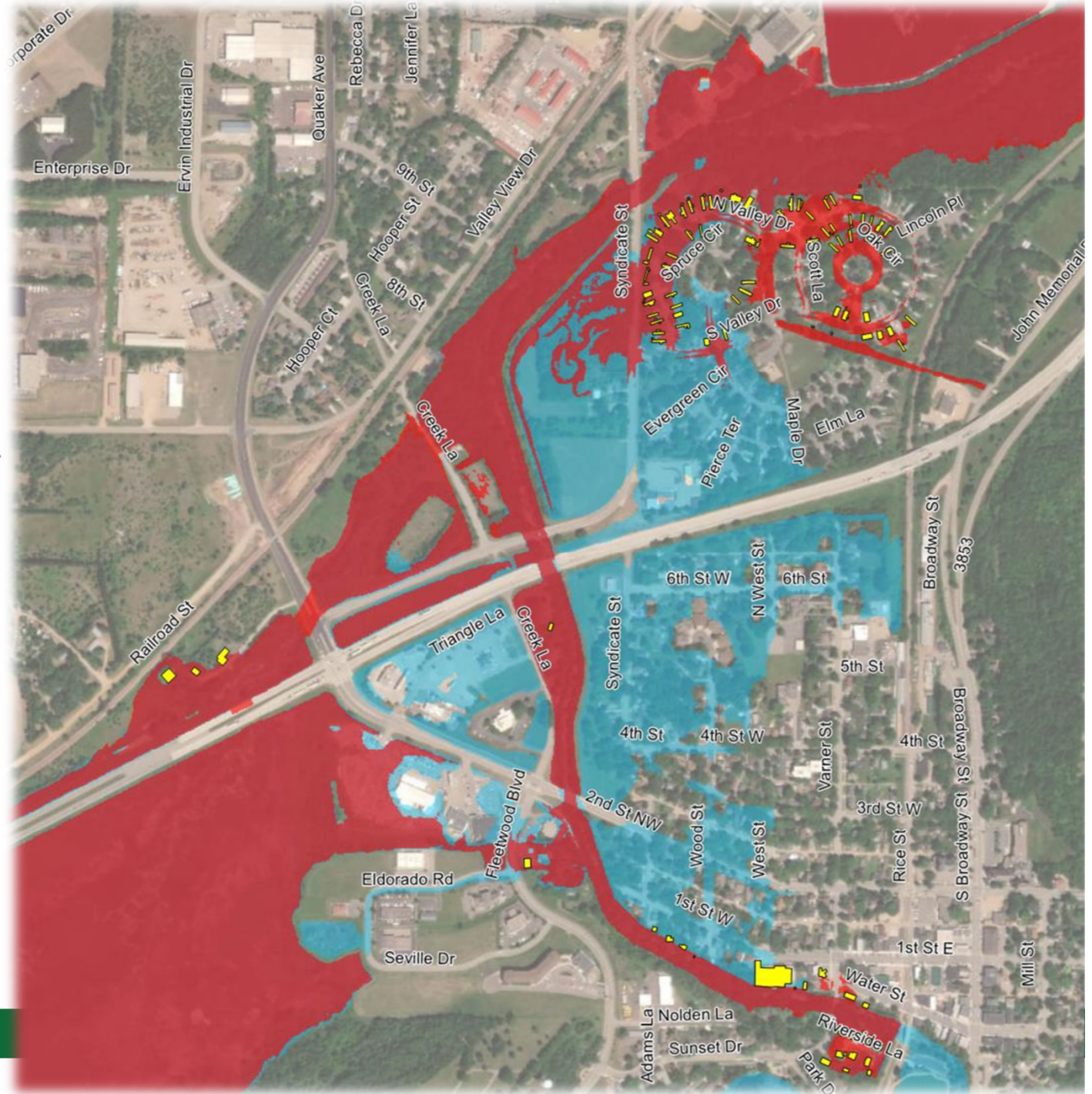
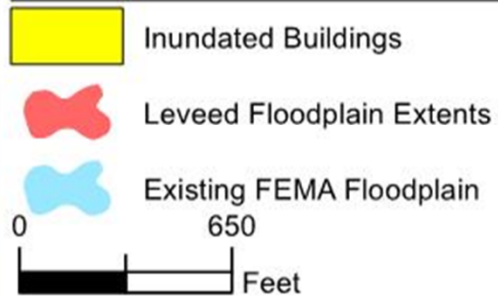
- Parks
- Parking
- Picnic Grounds
- Recreational Trails





# Benefits of Levee Segments 1 - 3

## Legend





# Estimated Costs Levees 1 - 3

## Varner to Syndicate Street

### Summary of Feasible Alternatives

Levee with Pond Option 1	\$ 5,658,600
Levee with Pond Option 2	\$ 7,393,400
Levee with Pond Option 3	\$ 7,634,600
Levee Alternate with Pond Option 1	\$ 7,497,600
Levee Alternate with Pond Option 2	\$ 9,232,400
Levee Alternate with Pond Option 3	\$ 9,473,600



# Estimated Costs Levees 1 - 3

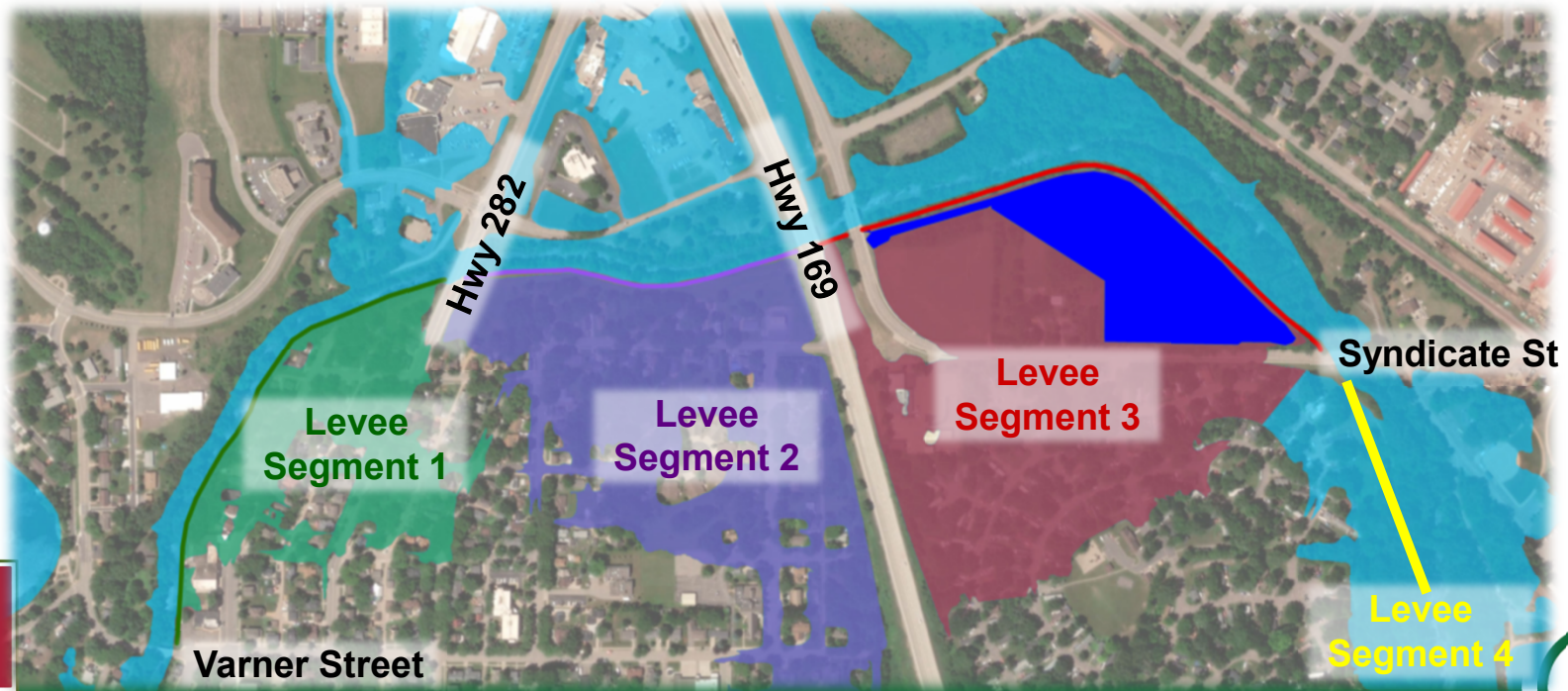
## Varner to Syndicate Street

Summary of Estimated Project Cost	
	Est. Cost
Internal Drainage - Storm Sewer & Pond Construction	\$ 1,023,600
Certified Levee Construction	\$ 2,052,000
<b>Estimated Construction Cost</b>	<b>\$ 3,075,600</b>
20% Est. Soft Costs	\$ 615,000
Land Acquisition	\$ 1,968,000
<b>Estimated Cost - Levee Construction</b>	<b>\$ 5,658,600</b>



# Benefits of Levee Segments

Levee Benefit Summary				
	Levee 1	Levee 2	Levee 3	Levee 4
Properties Removed From SFHA	50	60	4	1
Total Property Value	\$7,333,700	\$8,309,800	\$2,139,900	\$2,637,100
Properties with Flood Insurance	29	35	1	
Annual Flood Insurance Premiums Saved	\$48,551	\$66,155		
Properties without Flood Insurance	21	25	4	



# Flood Insurance Impacts

Summary of NFIP Policies	
Number of Policies	77
Total Cost	\$ 144,905
Policies Removed by Levee	65
Total Premium Reduction	\$ 118,534
Remaining Number of Policies	12
Remaining Total Cost	\$ 32,517

- Insurance rate increasing 8% on average
- Not all benefitting properties are paying flood insurance

# Flood Insurance Impacts

Relief for Rising Flood Insurance Premiums			
	Existing Conditions	With Levee	Potential Savings
Existing 2018 Costs	\$ 144,905		
Estimated 2019	\$ 156,500		
Estimated 2020	\$ 169,000	\$ 37,900	\$ 131,100
Estimated 2021	\$ 182,500	\$ 41,000	\$ 141,500
Estimated 2022	\$ 197,100	\$ 44,200	\$ 152,900
Estimated 2023	\$ 212,900	\$ 47,800	\$ 165,100
Estimated 2024	\$ 229,900	\$ 51,600	\$ 178,300
Estimated 2025	\$ 248,300	\$ 55,700	\$ 192,600
Estimated 2026	\$ 268,200	\$ 60,200	\$ 208,000
Estimated 2027	\$ 289,700	\$ 65,000	\$ 224,700
Estimated 2028	\$ 312,800	\$ 70,200	\$ 242,600
Estimated 2029	\$ 337,900	\$ 75,800	\$ 262,100
Estimated 2030	\$ 364,900	\$ 81,900	\$ 283,000
Estimated 2031	\$ 394,100	\$ 88,400	\$ 305,700
Estimated 2032	\$ 425,600	\$ 95,500	\$ 330,100
Estimated 2033	\$ 459,700	\$ 103,100	\$ 356,600
Estimated 2034	\$ 496,400	\$ 111,400	\$ 385,000
Total Estimated Savings by 2035			\$ 3,559,300



# Benefits of Flood Protection

- Public safety benefits
- Significantly reduced emergency response to flooding
- Protection from ice jams
- Reduce risk uninsured properties, privately and to rest of the community
- Community benefits: home ownership and affordability
- Increase in home values: estimated 5% to 10%
- Flood insurance premium savings of \$3.5M over next 15 years





# Detriments of Flood Protection

- Property acquisitions: loss of valuable property including some homes
- Relocations
- Addition of certified levees and stormwater basins in backyards
- Temporary construction impacts



## Next Steps

1. Continue public engagement with directly impacted properties associated with identified flood control solution
2. City Council considers applying for competitive grant funding and June 17<sup>th</sup> Council meeting
3. Continued public engagement – community wide
4. Receive state funding: multi-year process
5. Project Implementation



Please return this questionnaire to Jordan City Hall (210 First St E, Jordan MN 55352) by May 24, 2019.

Property Owner Name

Address 1



### Flood Control

### Property Owner Questionnaire


May, 2019

# Step 1: Collecting input from property owners most impacted

1. Do you currently pay for flood insurance premiums? (Yes / No / Unsure) \_\_\_\_\_
2. If so, how much do you pay on an annual basis? \_\_\_\_\_
3. Are you familiar with what is proposed? (Yes / Mostly / A little / No) \_\_\_\_\_
4. Would you like the City to contact you to provide more information regarding flood control improvements? (Yes / No) \_\_\_\_\_ If yes, please provide contact info: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. If you were fairly compensated for your property, would you be open to partial acquisition of green space (areas of your property without structures) to enable construction of flood control improvements?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
6. If you were fairly compensated for your property, would you be open to full acquisition of your property to enable construction of flood control improvements?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. If no acquisition of your property were required, would you support flood control improvements that protected your property, eliminated flood insurance premiums, and replaced insurance costs with a special assessment of a lesser amount?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
8. Is there any additional input you would like to provide? Please attached additional sheets as needed.



# Steps 2 & 3: State Flood Hazard Mitigation Funds

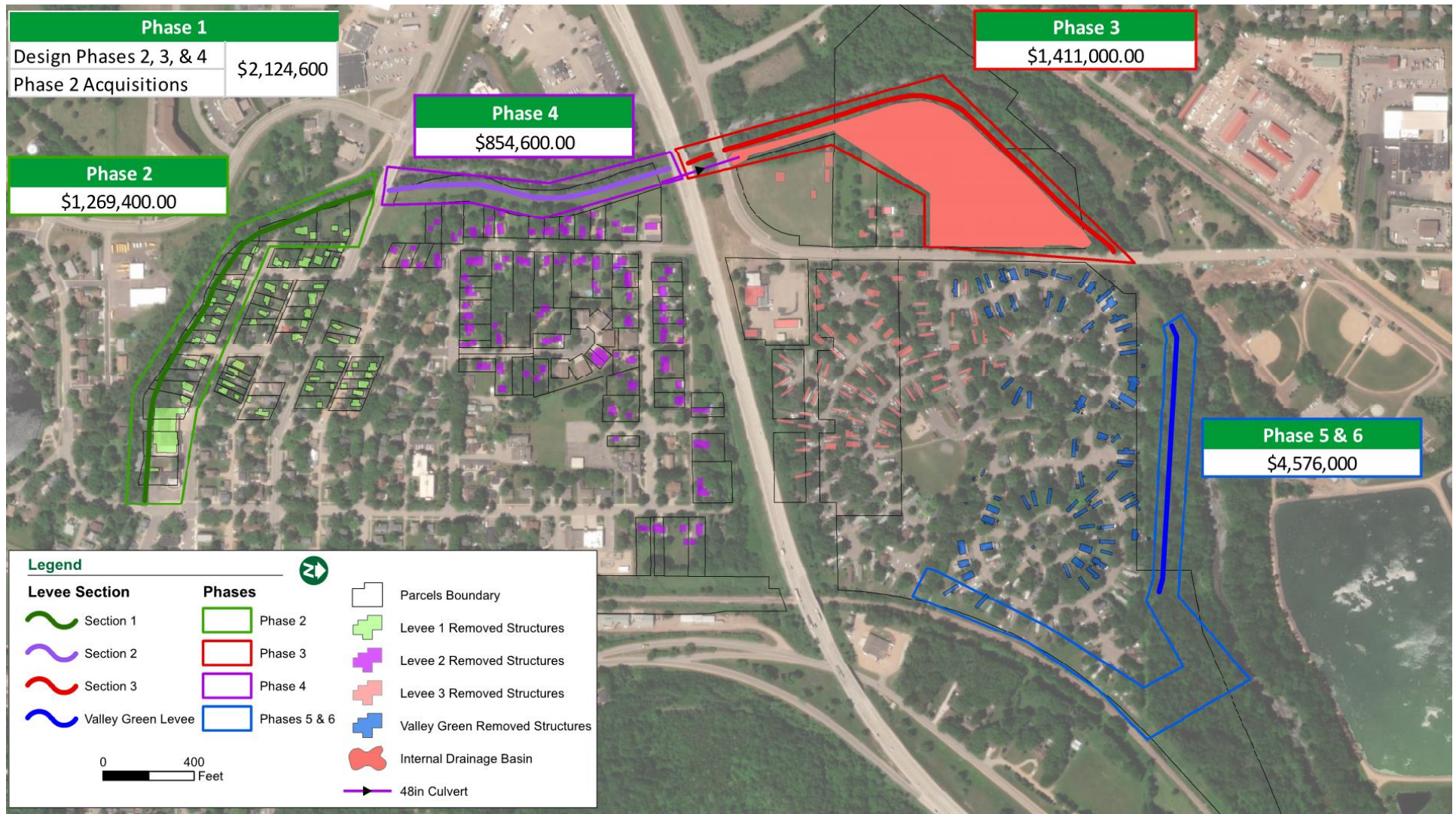
 <b>REMAINING KNOWN FLOOD HAZARD MITIGATION NEEDS *</b> <span>March 19 2019</span>			
COMMUNITY PROJECTS/PHASES	total project cost	total local match	remaining FDR funding needed
Afton	\$5,600,000	\$2,090,459	\$400,000
Austin assorted community flood risk proj.	\$20,000,000	\$7,000,000	\$7,000,000
Breckenridge (federal)	\$45,000,000	\$1,219,638	\$3,000,000
Browns Valley Touelle Coulee	\$2,000,000	\$132,000	\$1,350,000
City of Carver levee†	\$10,000,000	\$2,000,000	\$8,000,000
Delano	\$5,000,000	\$2,315,000	tbd
City of Faribault WWTP Protection†	\$6,000,000	\$3,000,000	\$3,000,000
Golden Valley/Crystal/New Hope-Decola Ponds P2	\$7,000,000	\$3,500,000	\$3,500,000
Halstad† (Phase 2 - road raise)	\$1,000,000	2% MHI	\$1,000,000
Hawley Phase 1	\$700,000	\$75,000	\$625,000
Hawley Phase 2 (road raise)	\$1,250,000	2% MHI	\$625,000
Jordan levee and storage †	\$6,500,000	\$2,441,880	\$4,058,120
Mankato (federal)	\$15,000,000	\$1,276,740	\$2,000,000
Moorhead levees	\$12,000,000	\$12,416,444	\$12,000,000
Moorhead acquisitions	\$20,000,000		\$20,000,000
Nielsenville	\$3,800,000	\$25,900	\$3,775,000
Newfolden†	\$6,000,000	\$132,600	\$5,861,400
Ortonville (Whetstone River rest)	\$7,000,000	\$610,614	\$3,400,000
Perley (phase 2 - road raise)	\$625,000	2%MHI	\$625,000
Rushford	\$2,000,000	\$630,360	\$200,000
St. Vincent†	\$2,400,000	\$25,617	\$2,400,000
Shamaineau Lake LID lake outlet	\$2,750,000	\$1,375,000	\$1,375,000
City of Worthington drainage/impdmt.	\$5,100,000	\$1,107,000	\$1,107,000
random scattered acquisitions	unknown	unknown	unknown
subtotal - community needs	\$187,725,000	\$41,874,261	\$85,301,520

IMPOUNDMENTS and OTHER WATERSHED DISTRICT PROJECTS			
Big Lake (BdSWD)†	\$650,000	\$260,000	\$390,000
Redpath (BdSWD)	\$35,000,000	\$8,136,229	\$20,000,000
Western 32 (BdSWD)†	\$650,000	\$1,500,000	\$4,500,000
Brandrup 9 (BdSWD)†	\$6,000,000	\$1,375,000	\$4,125,000
JD14 (MSTRWD)†	\$6,000,000	\$1,250,000	\$3,750,000
JD 19 (MSTRWD)†	\$6,500,000	\$1,250,000	\$3,755,000
Swift Coulee (MSTRWD)†	\$6,500,000	\$1,375,000	\$4,125,000
Prior Lake-Spring LakeWD storage/outlet imp	\$12,000,000	\$6,000,000	\$6,000,000
Cedar River WD Impoundments	\$13,000,000	\$3,500,000	\$2,000,000
Barnesville Township (BRRWD)	\$15,600,000	\$7,800,000	\$7,800,000
Wolverton Creek Restoration (BRRWD)	\$10,500,000	\$2,150,000	\$2,150,000
Upper South Branch (BRRWD)	\$11,100,000	\$3,000,000	\$5,550,000
Stony Creek (BRRWD)	\$14,000,000	\$7,000,000	\$7,000,000
Rice Creek WD† storage/conveyance improvements	tbd	tbd	tbd
Pine Lake (RLWD)†	\$3,000,000	\$1,500,000	\$1,500,000
Black River Impdmt (RLWD)	\$7,100,000	\$3,550,000	\$3,550,000
4 -Legged Lake (RLWD)†	\$1,000,000	\$250,000	\$750,000
Whitney Lake (RRWD)	\$6,000,000	\$2,900,000	\$2,900,000
Beltrami Forest (RRWD)†	\$4,000,000	\$1,000,000	\$3,000,000
Roseau Lake Bottom Rest. (RRWD)	\$20,000,000	\$5,000,000	\$15,000,000
Bear Park (SHRWD)†	\$4,500,000	\$2,100,000	\$2,400,000
Klondike (TRWD)	\$40,000,000	\$8,533,000	\$25,600,000
Lower Wild Rice Restor. (WRWD)†	\$8,000,000	\$2,000,000	\$6,000,000
Green Meadow (WRWD)†	\$2,000,000	\$6,400,000	\$13,200,000
Goose Prairie (WRWD)†	\$1,900,000	\$477,000	\$1,430,000
subtotal - watershed district needs	\$235,000,000	\$78,306,229	\$146,475,000
<b>GRAND TOTALS</b>	<b>\$422,725,000</b>	<b>\$120,180,490</b>	<b>\$231,776,520</b>
* based upon current estimates, subject to change as projects advance, bids received			
† no application/incomplete information			
DNR Ecological & Water Resources      contact Patrick Lynch 651-259-5691      pat.lynch@state.mn.us			

- Estimated local match is \$2.44M for phases 1-4







## Steps 4 & 5 – Funding & Implementation



# Property Acquisitions

1. Would occur in late 2020 at the absolute earliest. Timing dependent on City receiving necessary grant funding to acquire.
2. Appraisals to determine fair market property value
3. Fair market compensation would be made for:
  - Structures, trees, and other features permanently impacted/acquired
  - Land area permanently acquired for locating flood control facilities
  - Land area temporarily acquired for construction
  - Relocations, if necessary
4. Months-long negotiation would occur
5. Legal processes, including eminent domain proceedings, could occur if no agreement is reached





# Questions & Discussion

Contact information:

Mike Waltman, PE

Jordan City Engineer

[mikewa@Bolton-menk.com](mailto:mikewa@Bolton-menk.com)

952-890-0509

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Property Owner Name

Address 1

Flood Control

Property Owner Questionnaire

May, 2019



1. Do you currently pay for flood insurance premiums? (Yes / No / Unsure) \_\_\_\_\_
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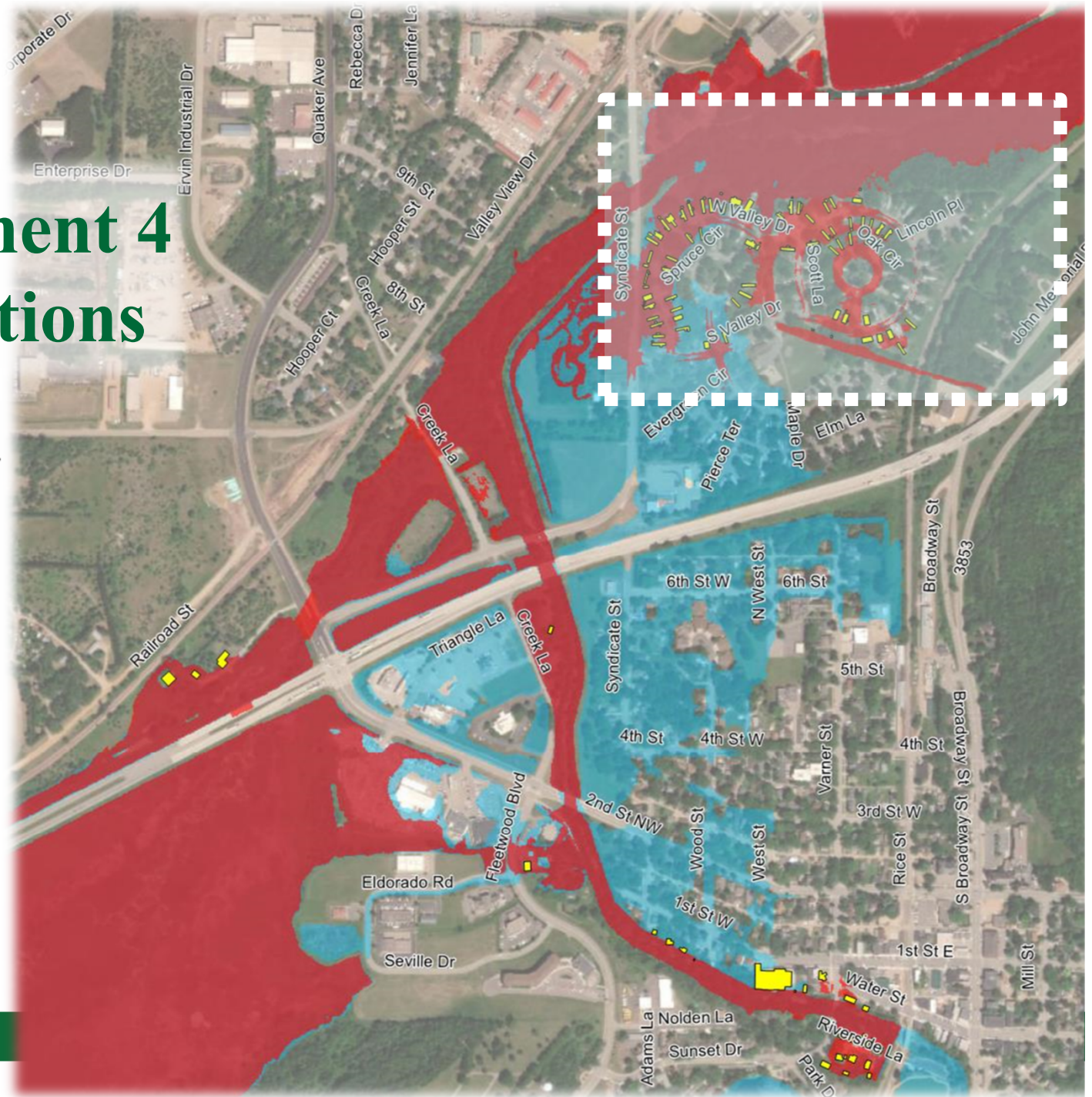
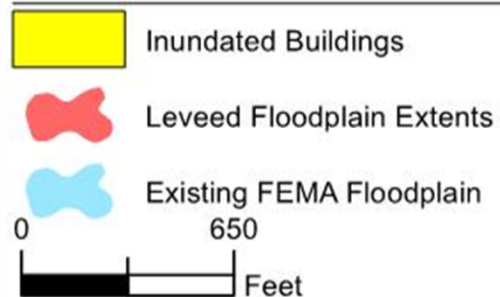
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# Levee Segment 4 Considerations

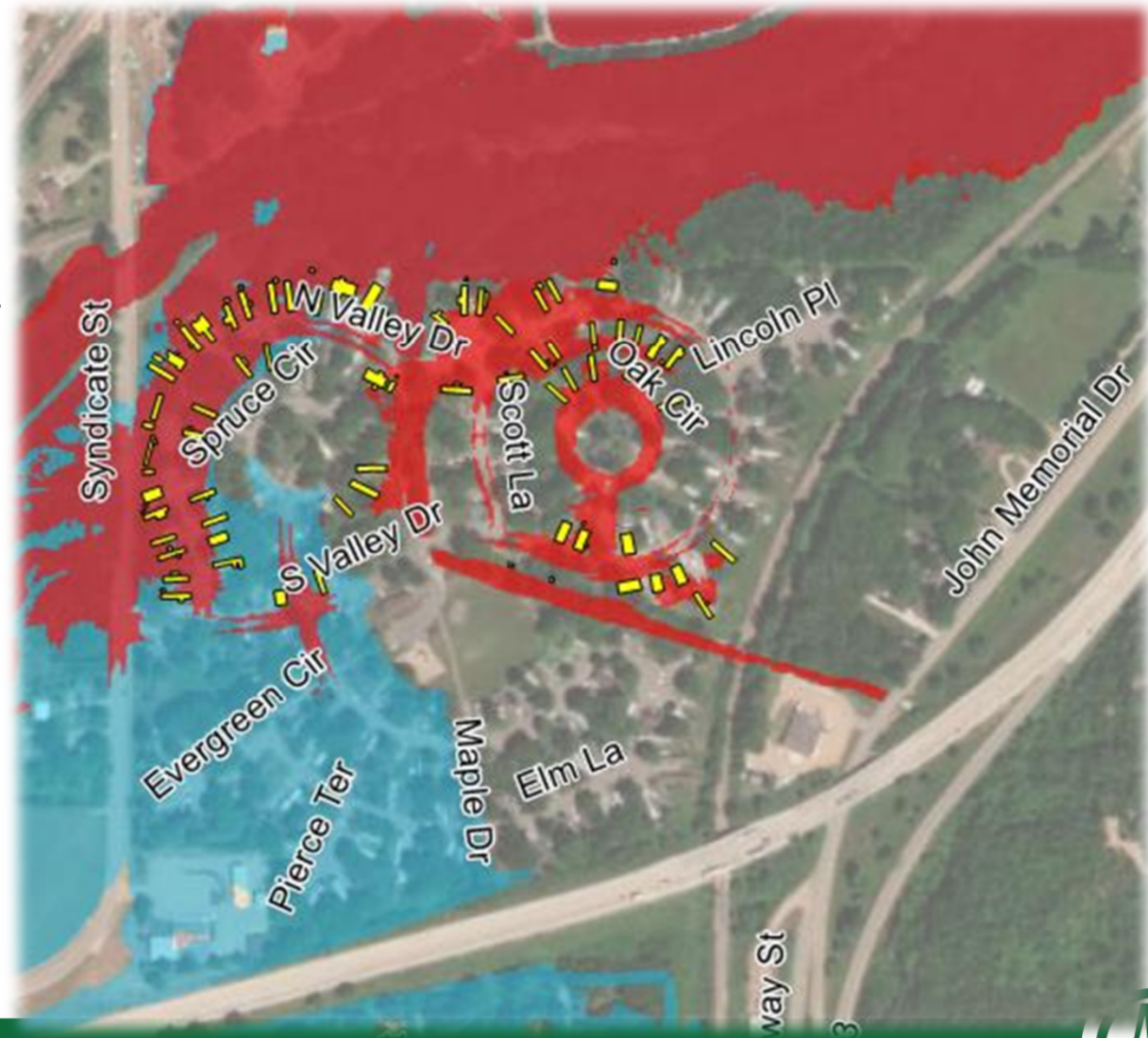
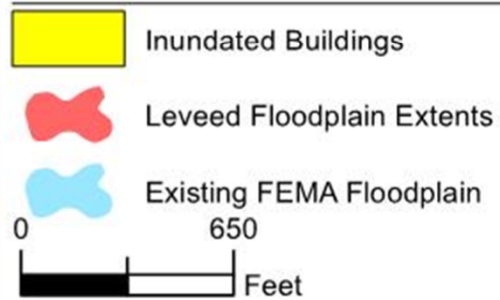
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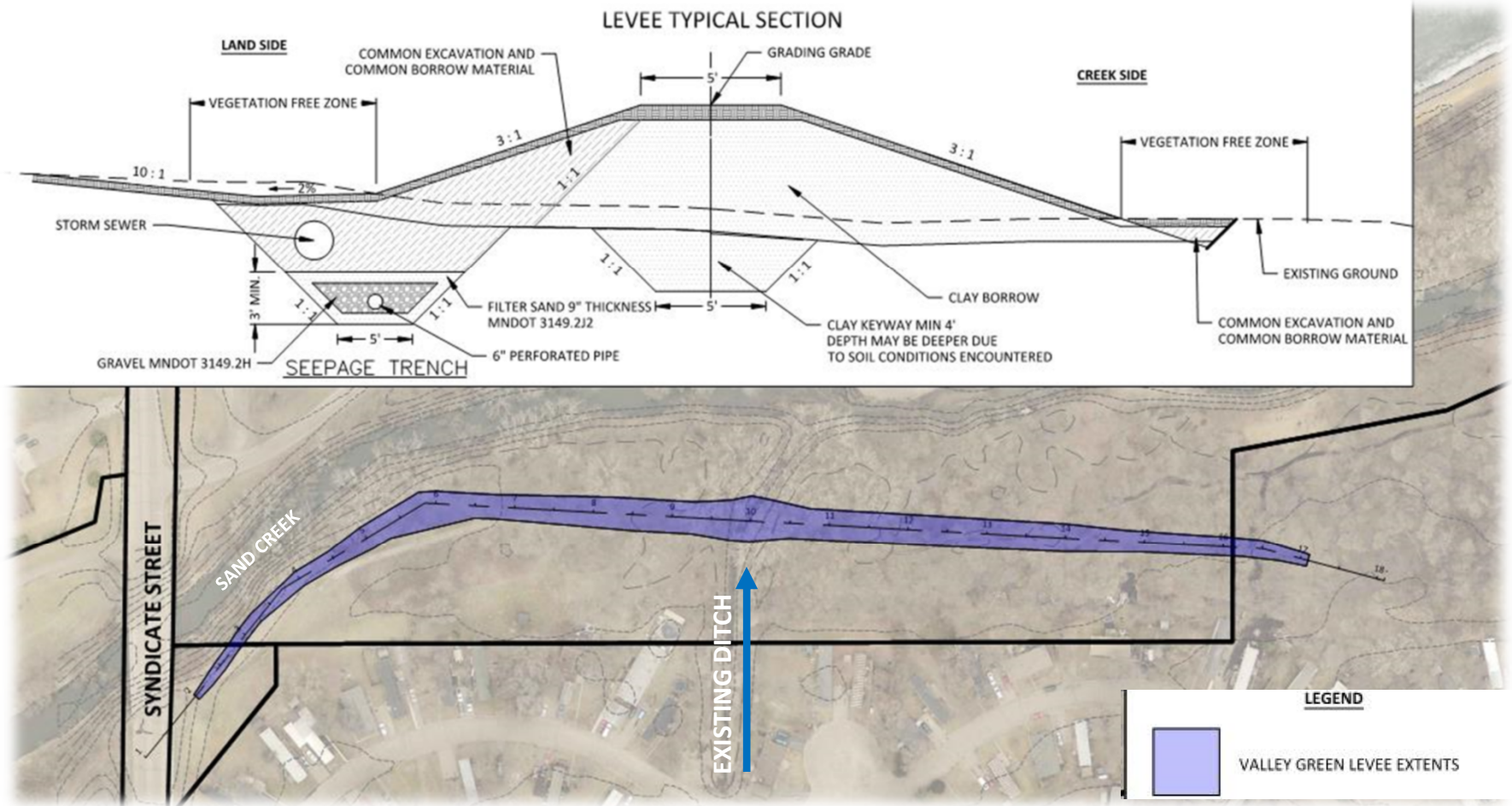


# Levee Segment 4: Valley Green

## Legend

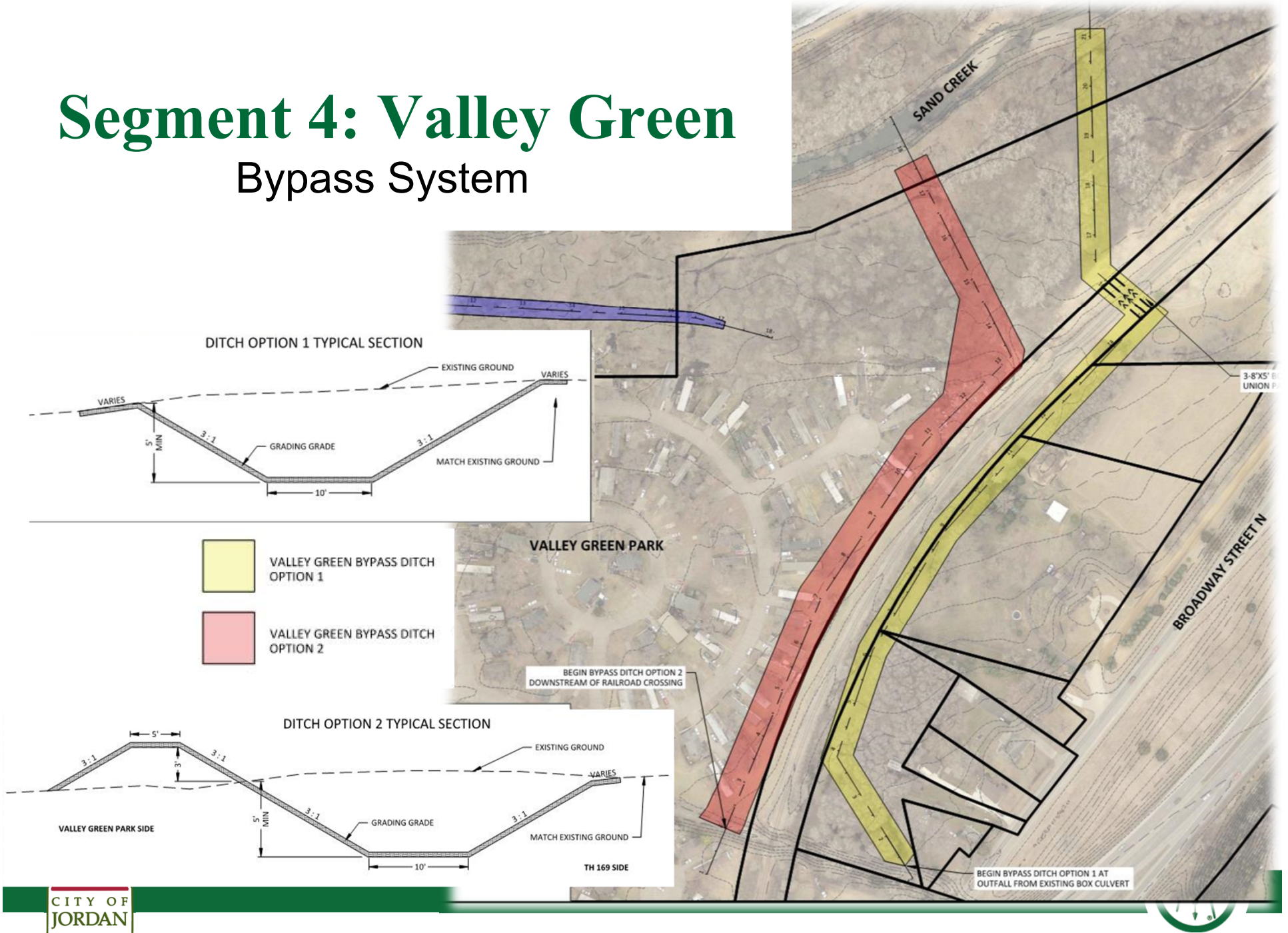


# Levee Segment 4: Valley Green





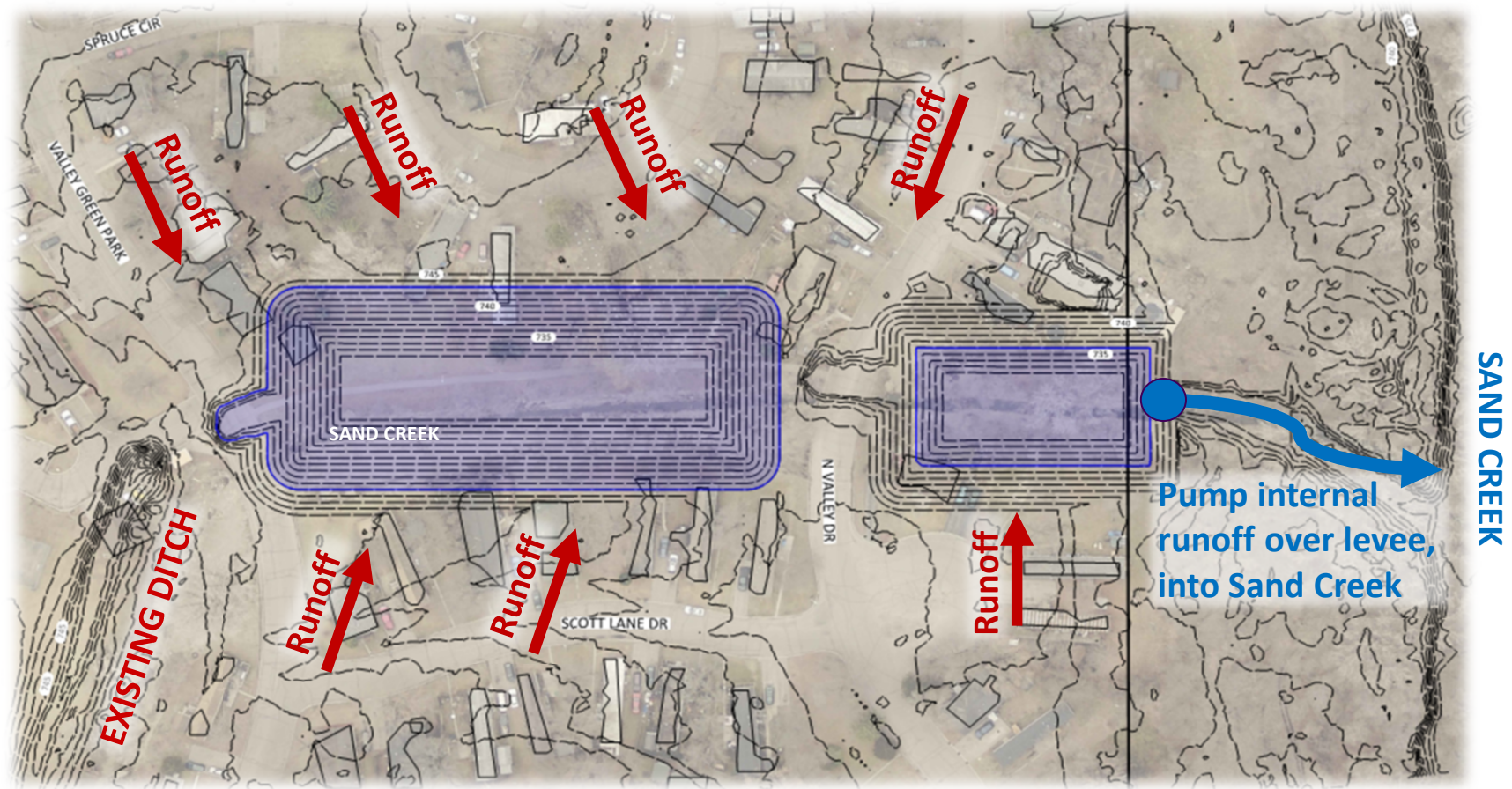
# Segment 4: Valley Green Bypass System





# Segment 4: Valley Green

## Internal Drainage & Pumping



# Estimated Costs Levee 4

## Along Valley Green

Table 20 Summary Cost - Valley Green Levee

Summary of Valley Green Levee Cost	
	Est. Cost
Internal Drainage	\$2,228,000
Ditch Bypass	\$534,000
Certified Levee Construction	\$547,000
<b>Subtotal</b>	<b>\$3,309,000</b>
Engineering & Legal Costs	\$662,000
Contingency	\$993,000
<b>Total Estimated Cost of Construction</b>	<b>\$4,964,000</b>

