



***El Zagal Area Flood Risk Reduction  
El Zagal Bowl  
City of Fargo – Project FM-14-51***

***Public Informational Meeting  
August 13, 2014  
6:30 P.M.***



Consulting Engineering • Land Surveying

**North Dakota**

Minot

West Fargo

**Minnesota**

Fergus Falls

Wadena

# Project Location





# Overview

- **Flood Risk**
- **FEMA Mapping**
- **Past Floods**
- **Project Summary**
  - **Phase I**
  - **Phase II**
- **Path Forward/ Project Schedule**
- **Acquisition Process Overview**
- **Golf Course**
- **Questions**



# Defining the Risk

- **Current Floodplain**
  - 38.5 Feet River Gage (29,300 cfs)
  - 475 Impacted Structures
  - 19,700 Acres Impacted
- **Preliminary Floodplain**
  - 39.4 Feet River Gage (29,300 cfs)
  - Approx. 2,300 Impacted Structures
  - 27,600 Acres Impacted
- **Flood of Record**
  - 40.8 Feet River Gage
- **Future of the Floodplain**
  - USACE 41.1 River Gage (34,700 cfs)
  - Approx. 19,400 Impacted Structures
  - 36,430 Acres Impacted





**CITY OF FARGO**  
**100 Year Flood Plain Mapping**  
**Comparison -**  
**Current & Proposed**  
**August 2012**



100 Year Flood Plain Comparison - Parcels				
	Current	Proposed (2008)	Proposed (2011)	FEMA (2012)
Fargo Parcels	1,213	9,345	8,326	6,711
Fargo ET Parcels	764	541	1,007	1,011
<b>Total</b>	<b>1,977</b>	<b>9,886</b>	<b>9,333</b>	<b>7,722</b>

100 Year Flood Plain Comparison - Acres				
	Current	Proposed (2008)	Proposed (2011)	FEMA (2012)
Fargo Parcels	6,051	11,892	12,054	12,088
Fargo ET Parcels	1,698	12,775	15,512	15,523
<b>Total</b>	<b>7,749</b>	<b>24,667</b>	<b>27,566</b>	<b>27,611</b>

100 Year Flood Plain Comparison - Primary Structures				
	Current	Proposed (2008)	Proposed (2011)	FEMA (2012)
Fargo Structures	226	3,154	2,926	2,555
Fargo ET Structures	243	264	270	290
<b>Total</b>	<b>469</b>	<b>3,418</b>	<b>3,196</b>	<b>2,845</b>

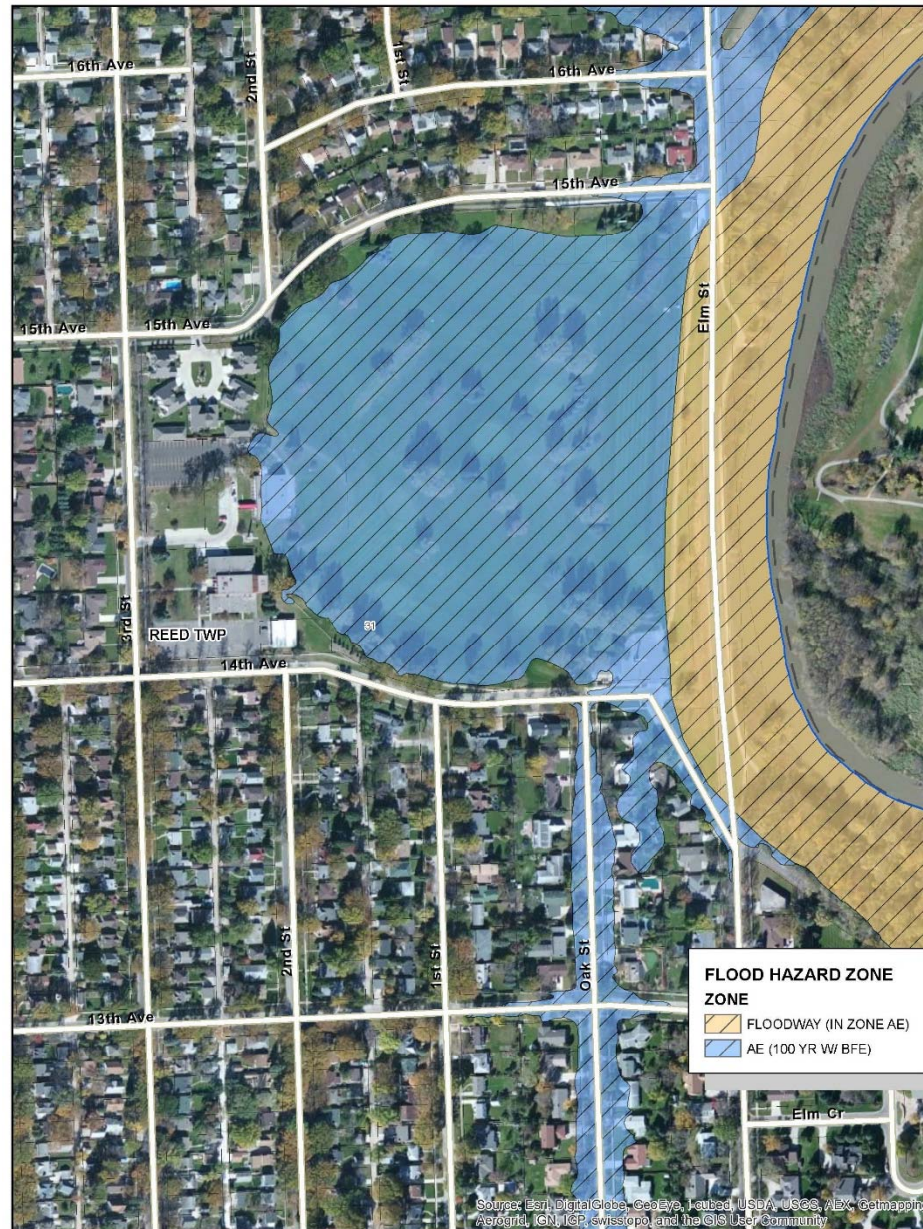
100 Year Flood Plain Comparison - Primary Structures - 25 Feet Buffer				
	Current	Proposed (2008)	Proposed (2011)	FEMA (2012)
Fargo Structures	638	6,951	6,426	5,127
Fargo ET Structures	305	425	444	488
<b>Total</b>	<b>943</b>	<b>7,376</b>	<b>6,870</b>	<b>5,615</b>

# Map Process

- Adoption January 16<sup>th</sup>, 2015
- Newly mapped properties will be mandated to carry flood insurance if the property owner has a federally backed mortgage



# Pending FEMA Floodplain Impacts





# Floodplain Impacts





# Floodplain Impacts





# Flood Insurance Changes

## ▶ Biggert Waters 2012

- Congress Passed in July 2012
- Reauthorized the NFIP for 5 years
- Make the NFIP Self Supporting
- Rate = Risk
- Financial Stability of Program overall...fast track

## ▶ Grimm Waters 2014 (AKA- Homeowner Flood Insurance Affordability Act of 2014 or HFIAA 14)

- Congress Passed in March 2014
- Repeals and modifies portions of BW 12
- Focus on affordability
- Financial Stability of Program overall...slower path
- Creates new subsidies
  - \$25 Primary Structures
  - \$250 Non-primary & business

BW-12

GW-14 or HFIAA-14

# Flood Insurance Changes

- ▶ Subsidized rates phased out
    - Non primary residence
    - Business
    - Severe repetitive loss
  - ▶ New Policies Full risk rates
    - After sale
    - Not insured prior to BW-12
    - Lapse
    - Refusal to mitigate
  - ▶ Grandfathering was eliminated.
    - Pre-Firm subsidies eliminated.
    - Newly mapped in properties rates increase 25% until full rates reached.
- ▶ Subsidized rates phased out
    - Non primary residence
    - Business
    - Severe repetitive loss
  - ▶ New Policies Full risk rates
    - Lapse
    - Refusal to mitigate
  - ▶ Refunds
  - ▶ Grandfathering reinstated
    - Exact extent unknown at this time

BW-12

GW-14 or HFIAA-14



# Red River Flooding History

## 💧 **Red River Flood Stage = 18 feet on the Fargo gage at 13th Ave. S.**

Exceeded in 50 of the past 111 years

Exceeded every year from 1993 through 2011, and again in 2013 and 2014.

## 💧 **Catastrophic damages have been prevented by emergency measures**

8 of the 16 “major” floods on record have occurred since 2000

## 💧 **2009 was the flood of record**

Stage of 40.8 feet

Emergency measures cost approximately \$70M



# Past Floods: 2009

Elm Street & 14th Avenue N.

Red River Crest (at Fargo): 40.83'





## Past Floods: 2009 Cont.

Temporary sandbag levee  
along El Zagal Shrine



## Past Floods: 2009 Cont.

Temporary earthen levee along  
14th Avenue N





# Past Floods: 2010

Elm Street at 14th Ave. N.

Red River Crest (at Fargo): 36.99'



**March 18, 2010:** By about 5:00 pm, waters begin to spill over the dike at El Zagal Golf Course.



## Past Floods: 2010



**March 21, 2010:** Elm Street at 15th Ave. N at flood crest. Flood barricades of the new flood wall (completed 2009) are working effectively. Red River stage (at Fargo): 36.99'.



# Past Floods: 2011

Elm Street & 14th Avenue N.

Red River Crest (at Fargo): 38.81'



**April 4, 2011:** Elm Street in Fargo is flooded, with the floodwall (far distance) now closed. Red River stage (at Fargo): 25.7'.

**April 6, 2011:** Workers construct a temporary clay dike at 14th Ave. N and Elm St., Fargo, ND. Red River stage (at Fargo): 32.5'





# Past Floods: 2011



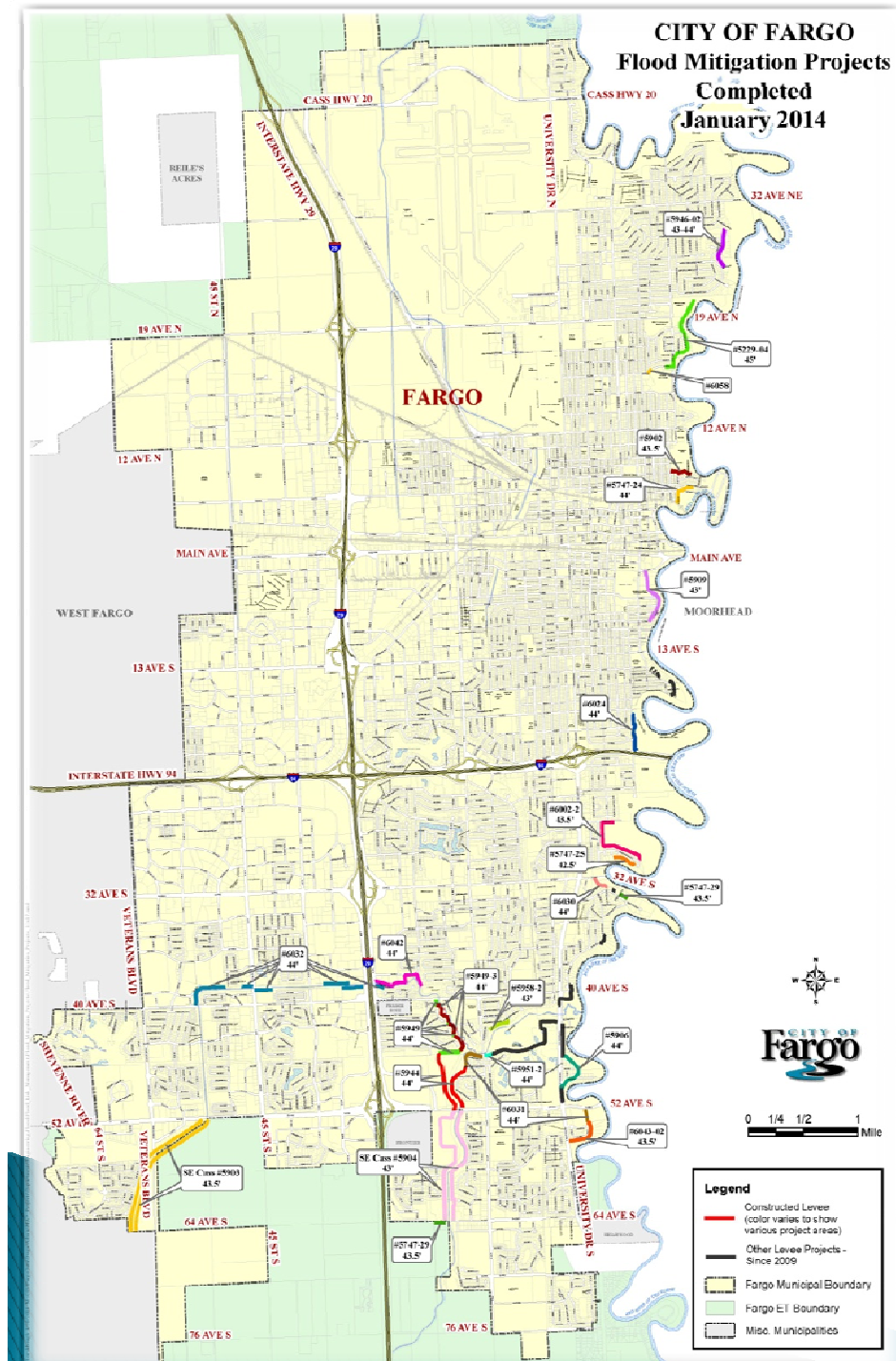
**April 7, 2011:** At sunrise, water spills over the dike at El Zagal Golf Course in Fargo, ND. Red River stage (at Fargo): 34.9'.



**April 6, 2011:** A double-barrier of Hesco dikes lines the west side of El Zagal Golf Course at 14th Ave. N in Fargo, ND. Red River stage (at Fargo): 32.5'.





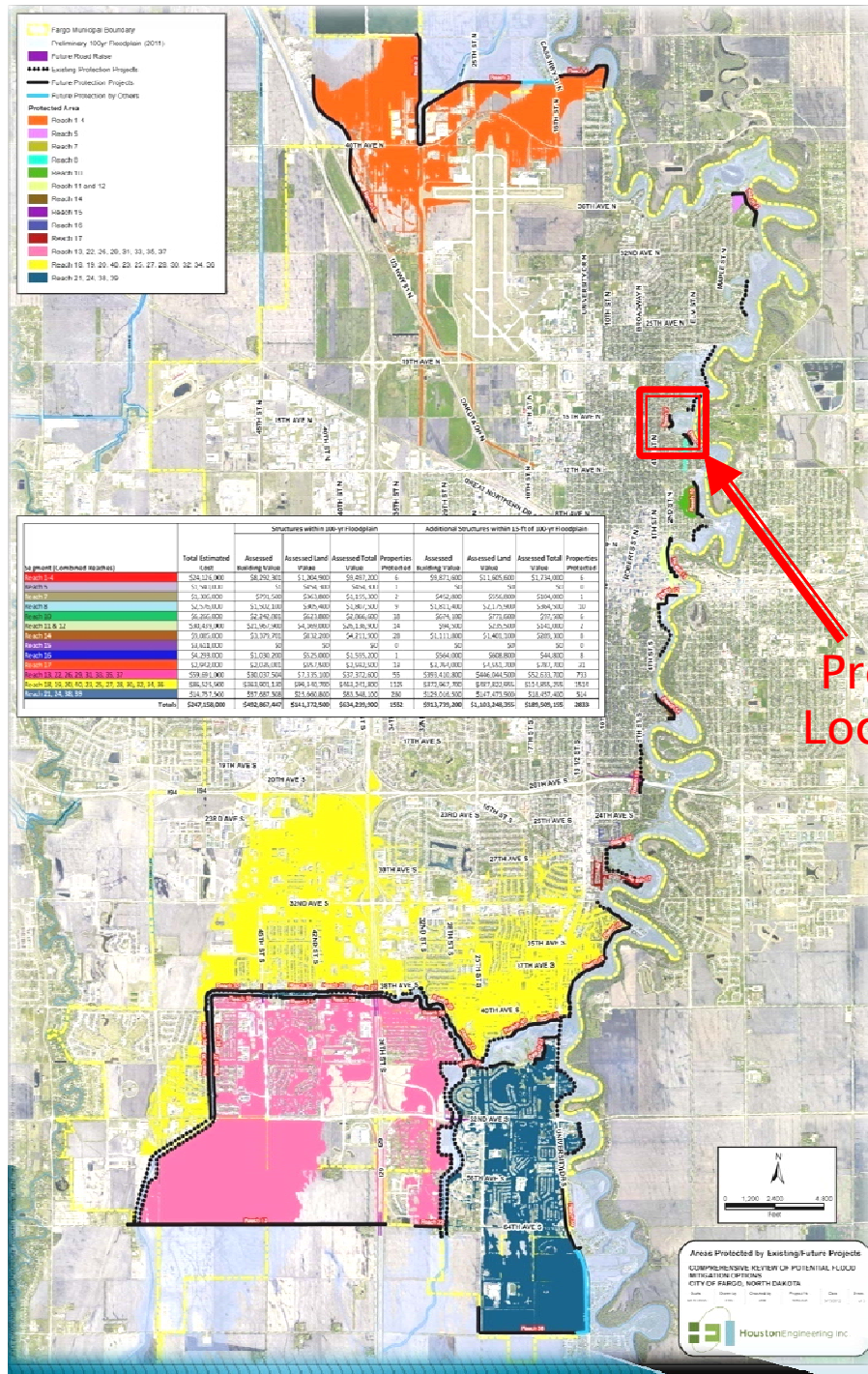


# Fargo's Progress to Date

- ▶ Approximately 14 Miles of Improvements Totaling Over \$57M Since 2009
- ▶ Over 300 Buyouts Completed
- ▶ Reduce required sandbags by approximately 3.4 million

# Fargo's Comprehensive Plan

- ▶ Identified an Estimated \$247 M in Projects
- ▶ Would require
  - 197 residential buyouts
  - 5 commercial/Industrial buyouts
- ▶ Yellow area has approx 1,500 structures in floodplain
- ▶ Funding limitations require prioritization
- ▶ Outstanding Issues
  - With Comprehensive Plan completed would still need:
    - 7.6 miles of emergency clay levees
    - 3.2 miles of sandbag levees



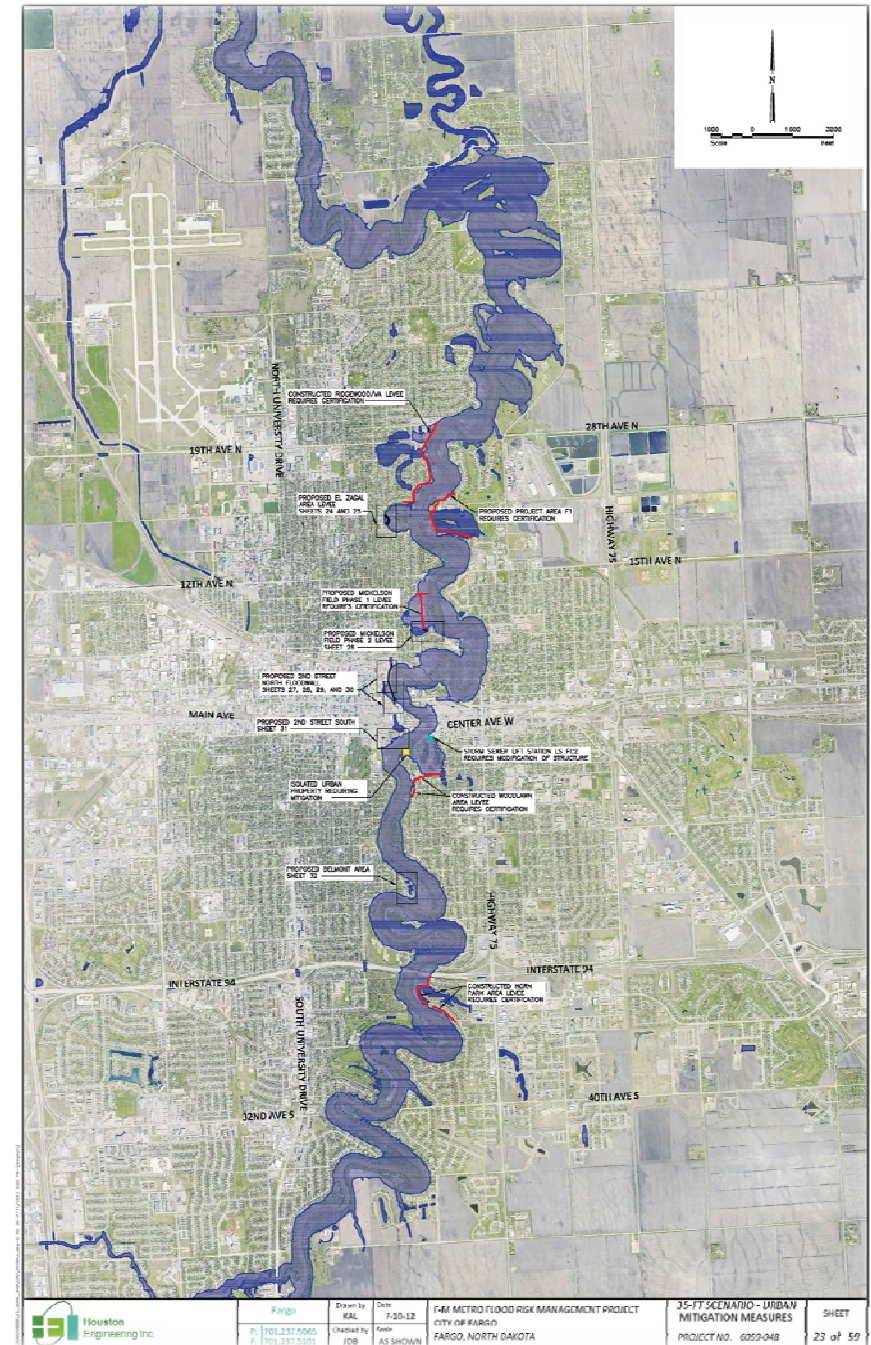


# 35 foot Mitigation Measures

## In-town/Diversion Coincident Reaches

- Existing Levees Requiring Certification (5)
  - 3–Moorhead 2–Fargo\*\*
- El Zagal Area Protection
- Mickelson Area Protection
- 2<sup>nd</sup> St. Protection
- Belmont Area Protection
- Individual Property Mitigation/Acquisitions

\*\* Also must maintain certification of 4<sup>th</sup> Street Levee in Fargo

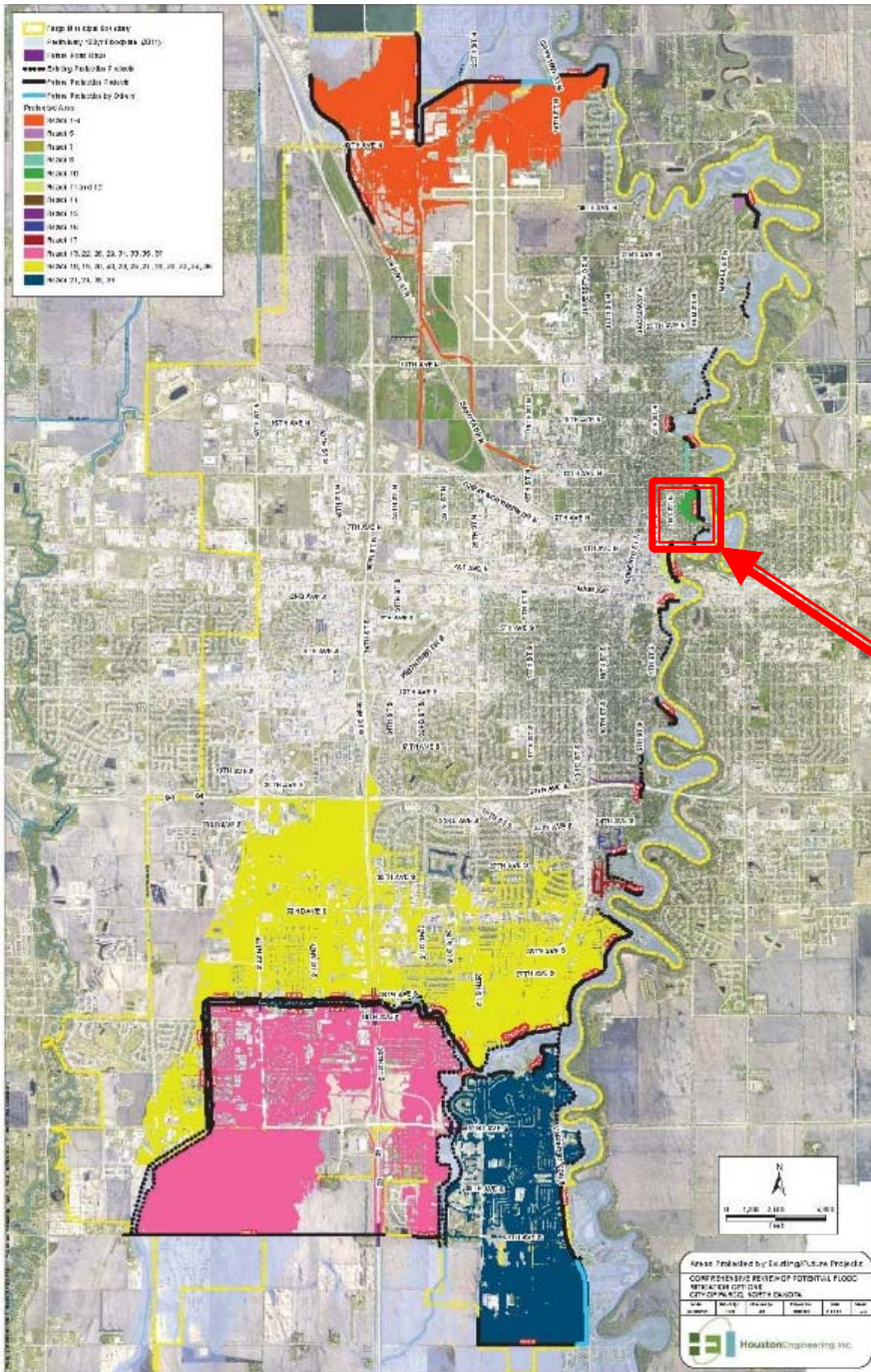




# Fargo Comprehensive Plan

Project Location

- Diversion Compatible
  - 35' plus freeboard





# Project Features, Goals & Considerations:

- Phase 1
  - 39.5' Plus Freeboard
  - Stability of Earthen Levee
  - Limit impacts to private property, trees, & course
  - Golf Course Reconstruction (by Park District)
    - Golf course worked with project to limit impacts to private property and homes
- Phase 2
  - 39.5' Plus Freeboard
  - Stability of Earthen Levee
  - Residential Acquisitions – Minimize
  - Limit impacts to private property and trees
  - 14<sup>th</sup> Ave Permanent Closure
  - Elm Street Temporary Closure

# Project Features: Project Overview



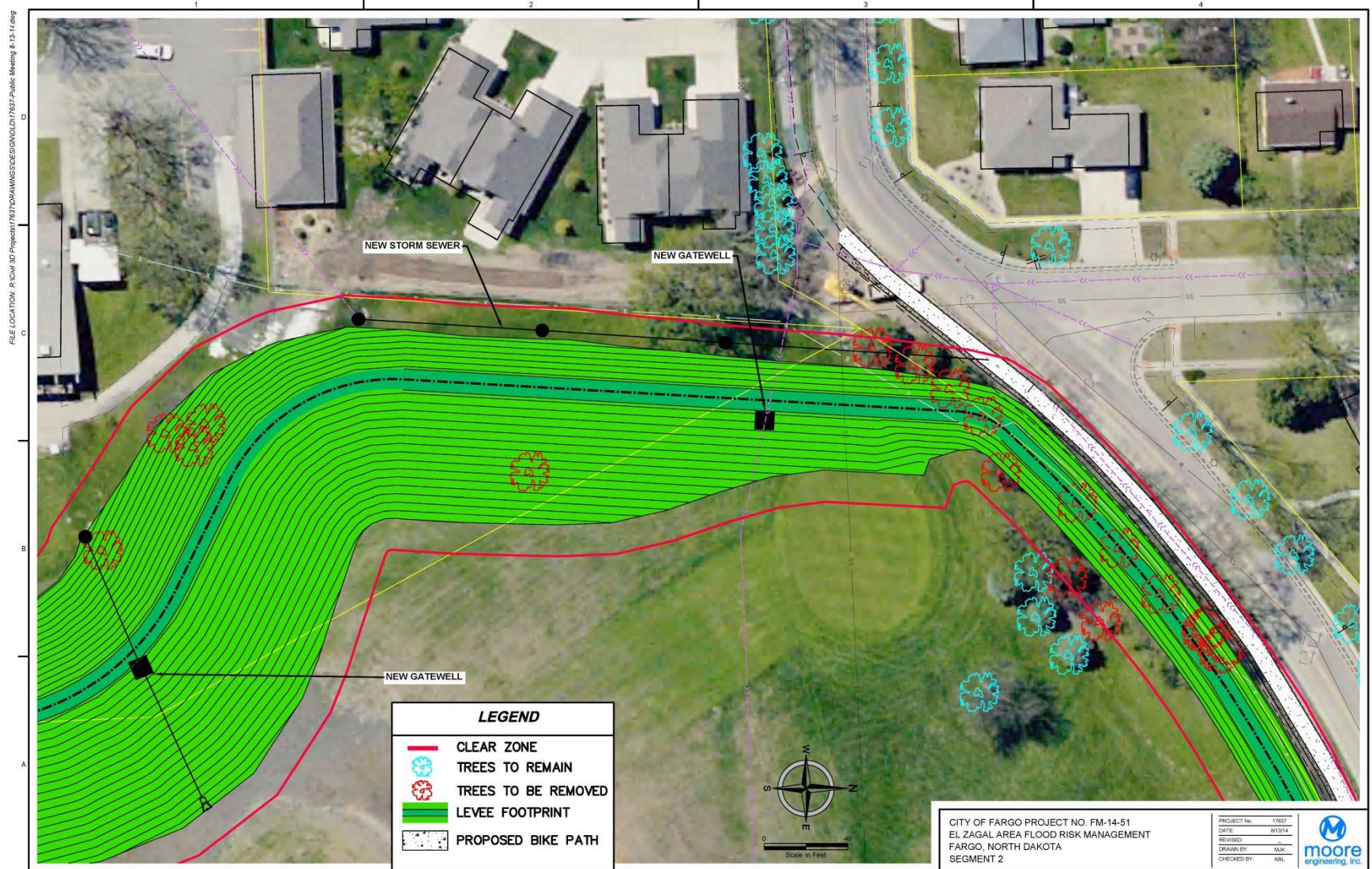


# Project Features: Phase I



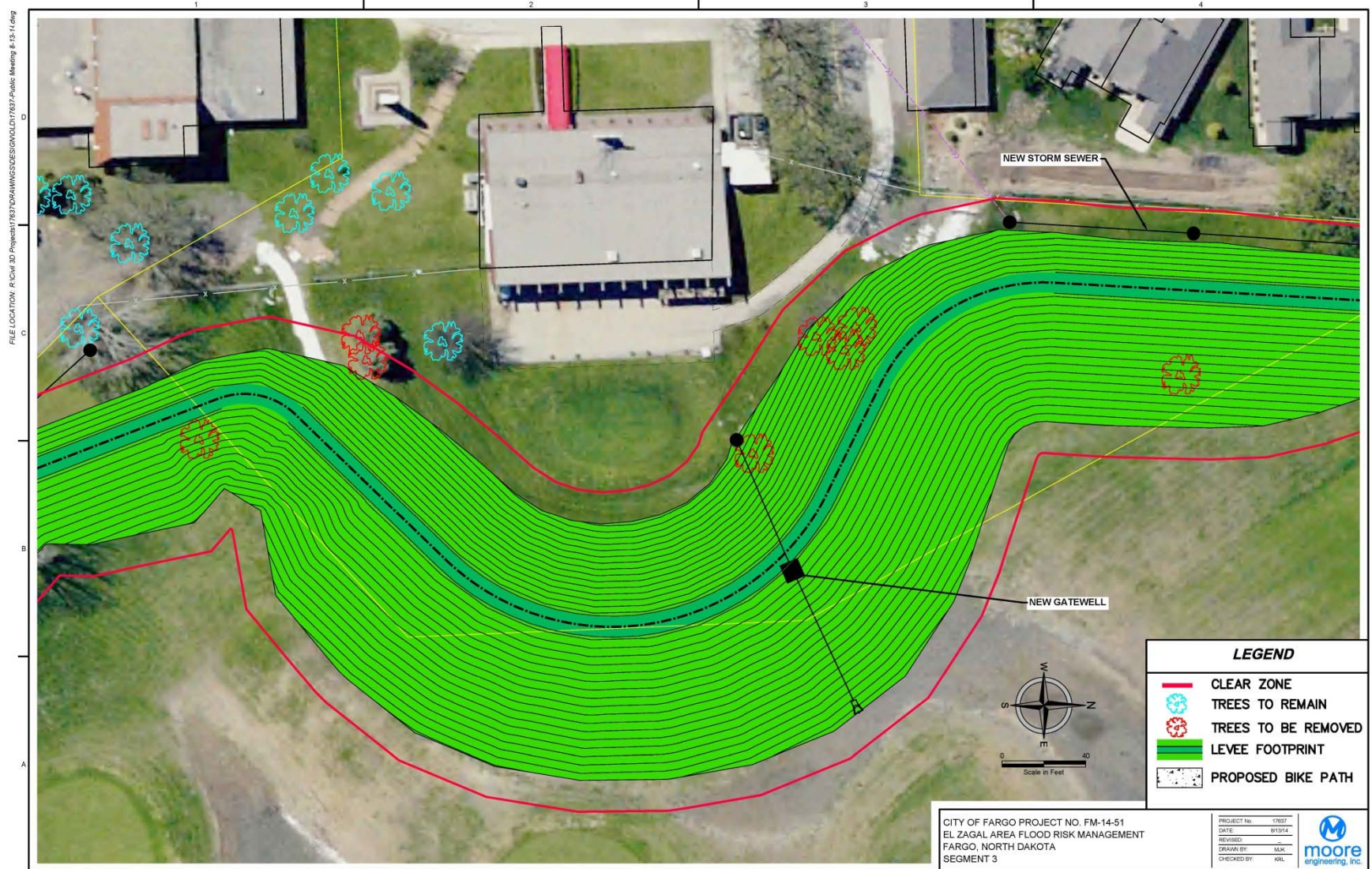


# Project Features: Phase I Cont.





# Project Features: Phase I Cont.



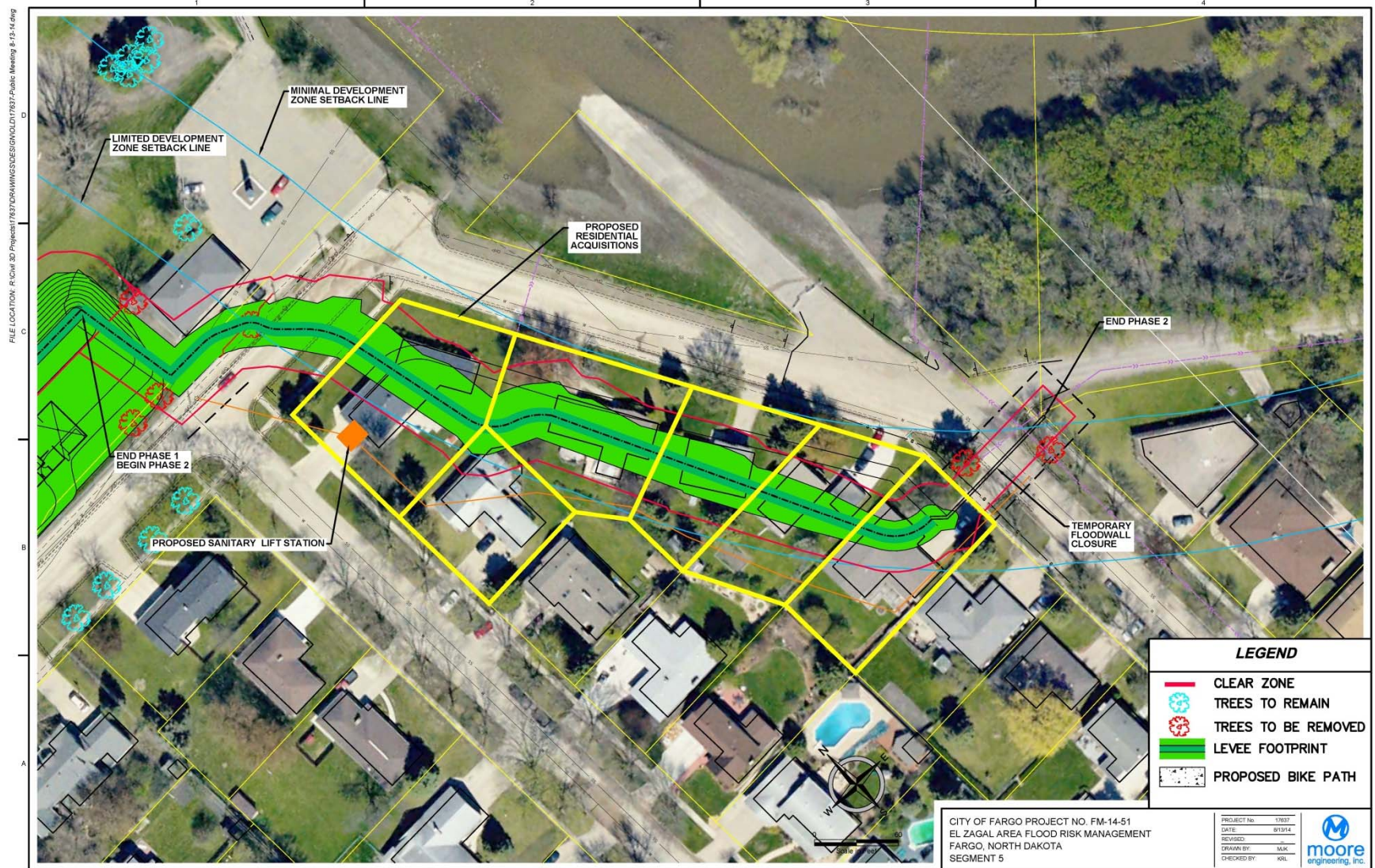


# Project Features: Phase I Cont.





# Project Features: Phase II



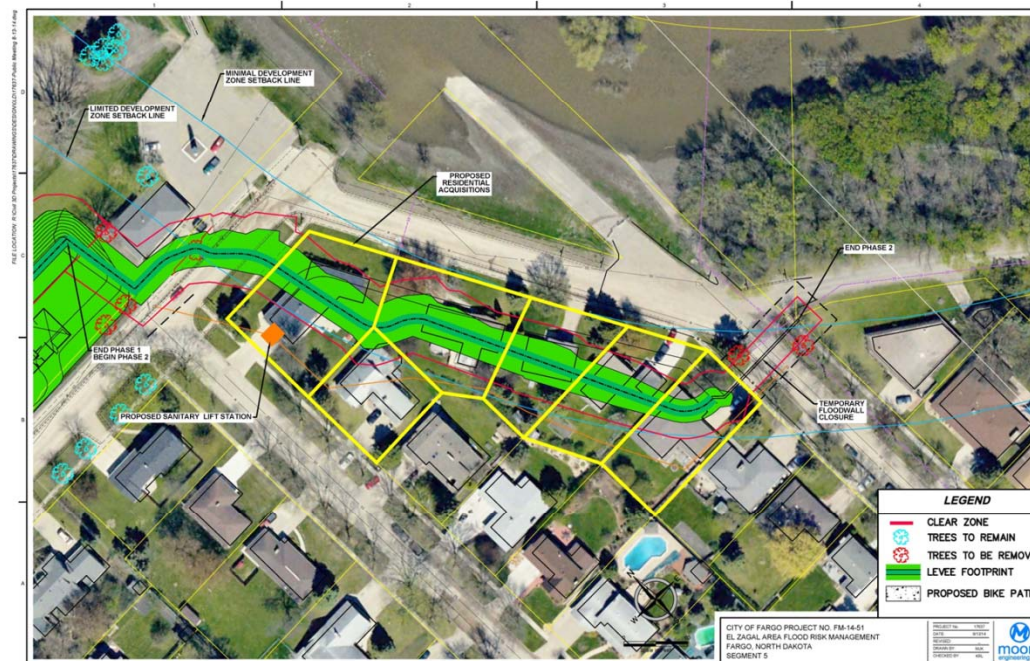
# Path Forward / Schedule

- June / August 2014 – Public Meetings
- August 27, 2014 – Bid Phase I
- Fall 2014/Spring 2015 – Construct Phase 1
- 2014 – Phase II Residential Acquisition
- 2015 Construction Season – Bid & Construct Phase II



# Acquisition Process Overview

- Acquisitions will follow Federal Guidelines
  - Appraisals will be completed
  - Relocation Assistance
- Diversion Authority will complete the acquisitions



# Golf Course

- Course will still flood
  - Storm sewer improvements will allow for a quicker recovery
- Updated Features
  - Course will be reconstructed
    - Full Par 3 Course
  - Updated Pro Shop
- Cost Savings vs Floodwall
- Park District plans to start construction fall of 2014
  - Course will be closed 2015 to allow for vegetation establishment



# Golf Course







Questions?



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