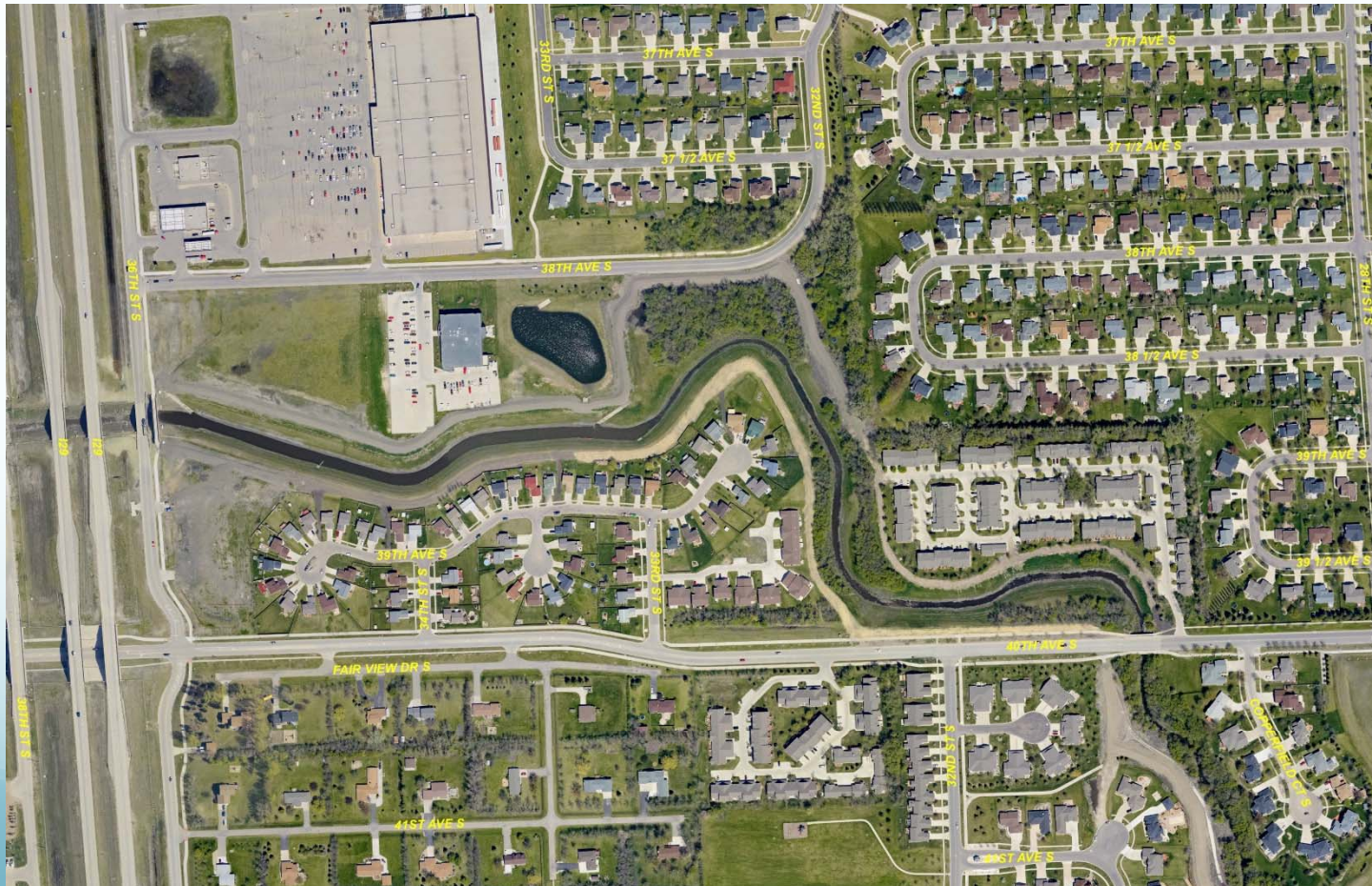


Drain 27 Flood Risk Management Project (40th Avenue South to I-29) City of Fargo - Project #6229

Public Informational Meeting
May 12, 2015



Overview / Why Are We Here?

- **Project Purpose/Background**
- **Review of Past Meeting/Alternatives Considered**
- **Overview of On-going and Upcoming Work**
- **Path Forward / Project Schedule**
- **Acquisition Process Overview**
- **Questions**



Now & Future Floodplain

- Now Effective Floodplain
 - 39.4 Feet River Gage (29,300 cfs)
 - Approx. 2,470 Impacted Structures
 - Approx. 7,500 Impacted properties
 - 27,600 Acres Impacted
 - After Diversion – This elevation will be close to 500-year flood levels
- 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

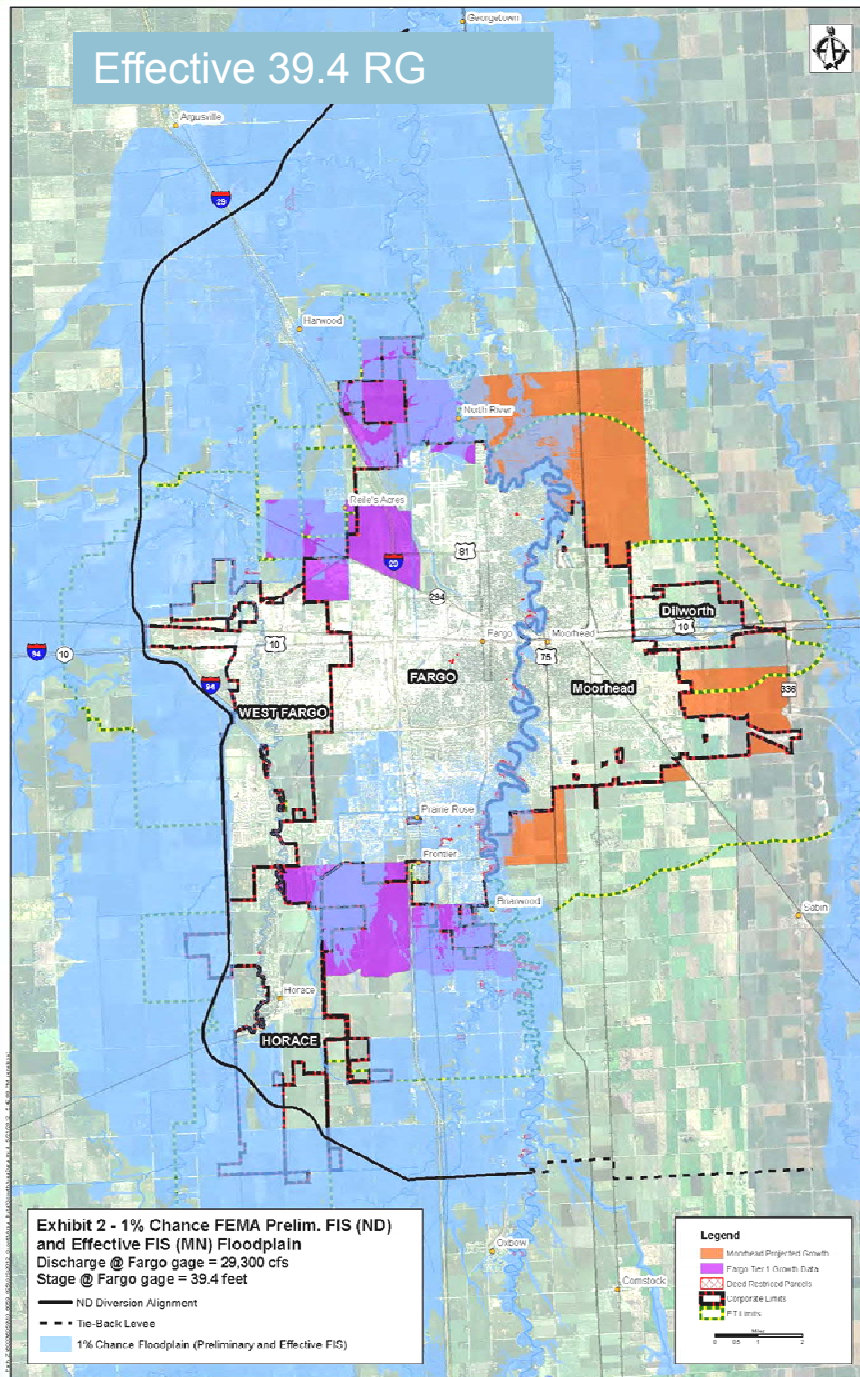


FEMA Floodplain Impacts

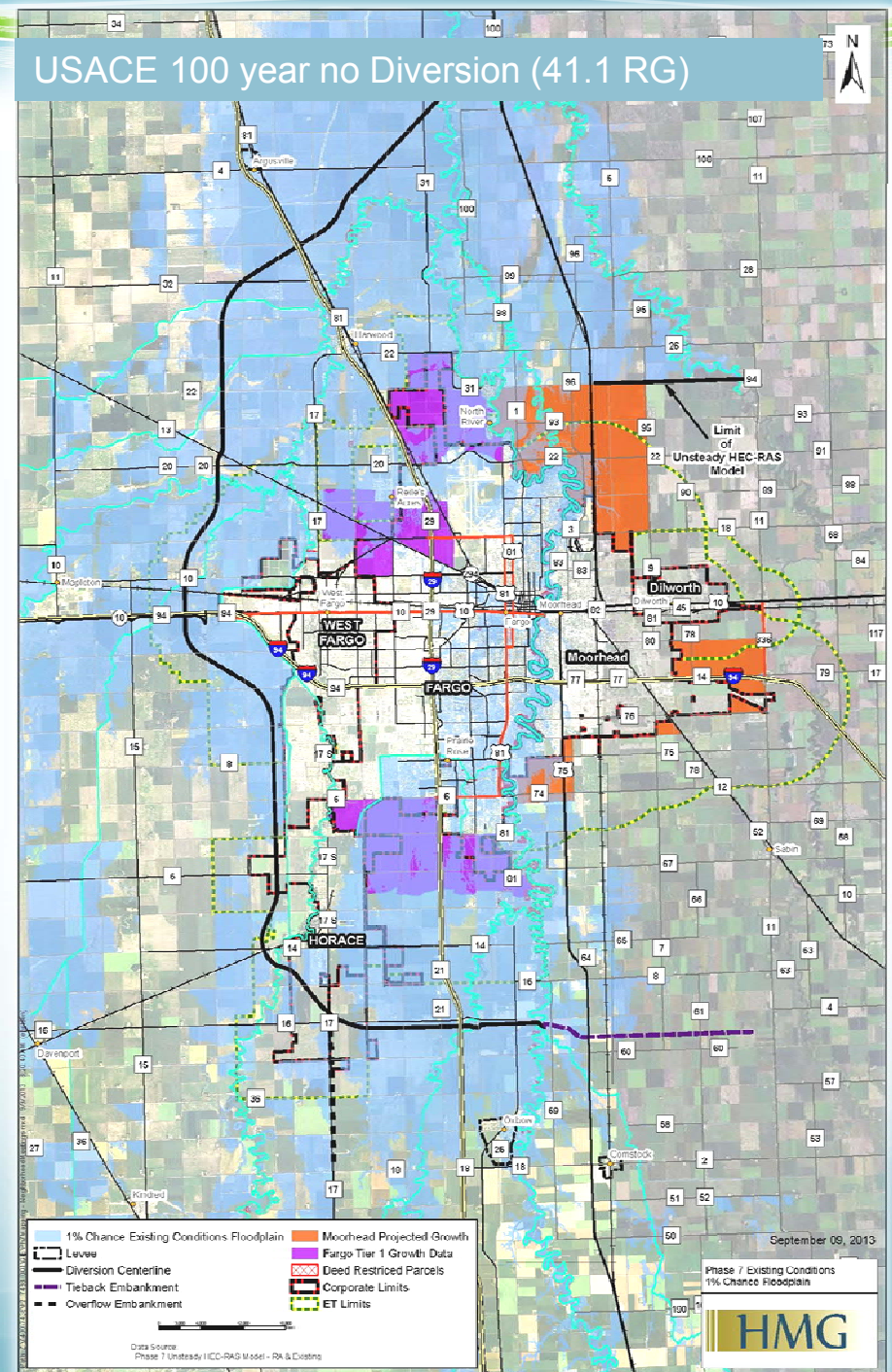
FEMA Effective 100yr



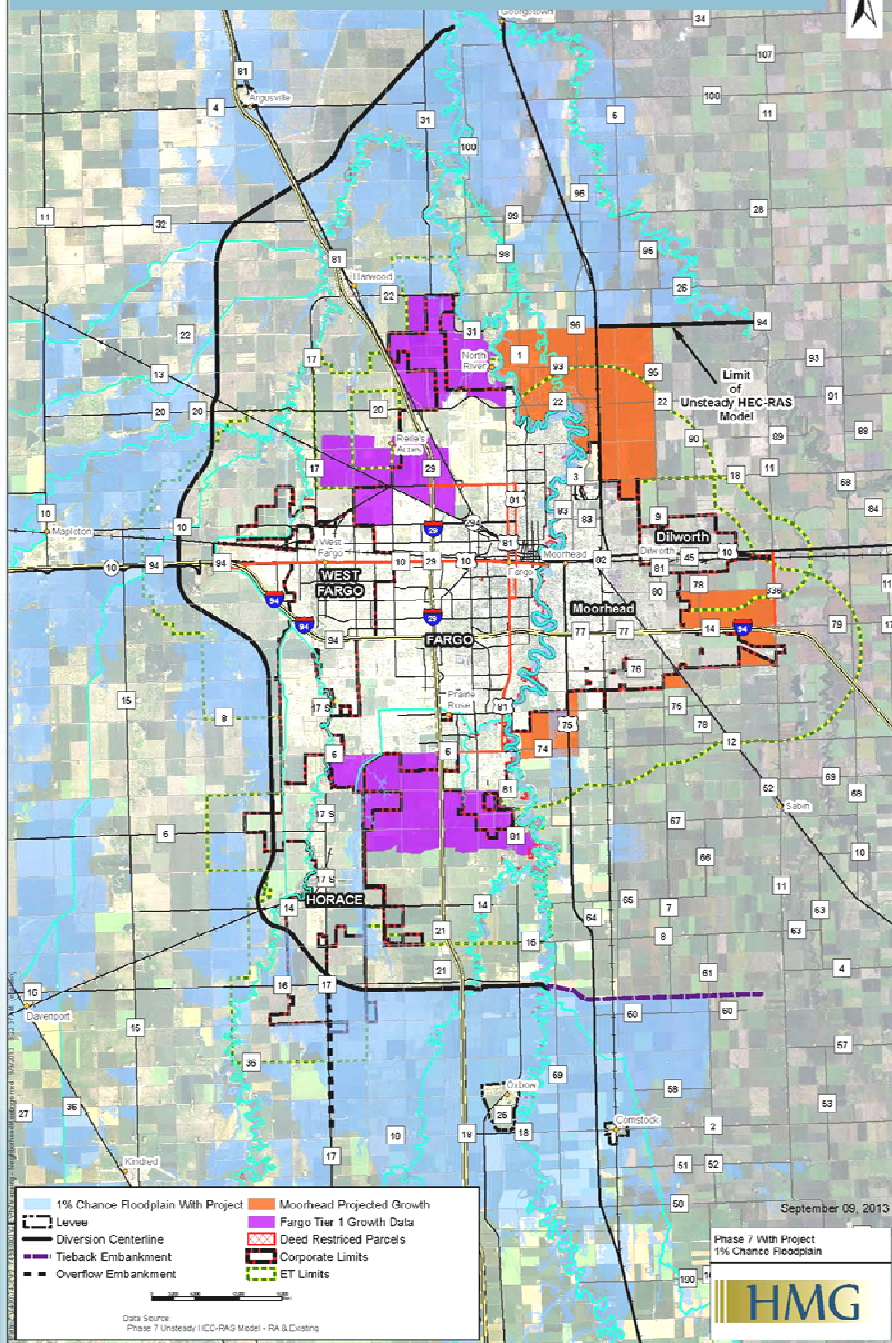
Effective 39.4 RG



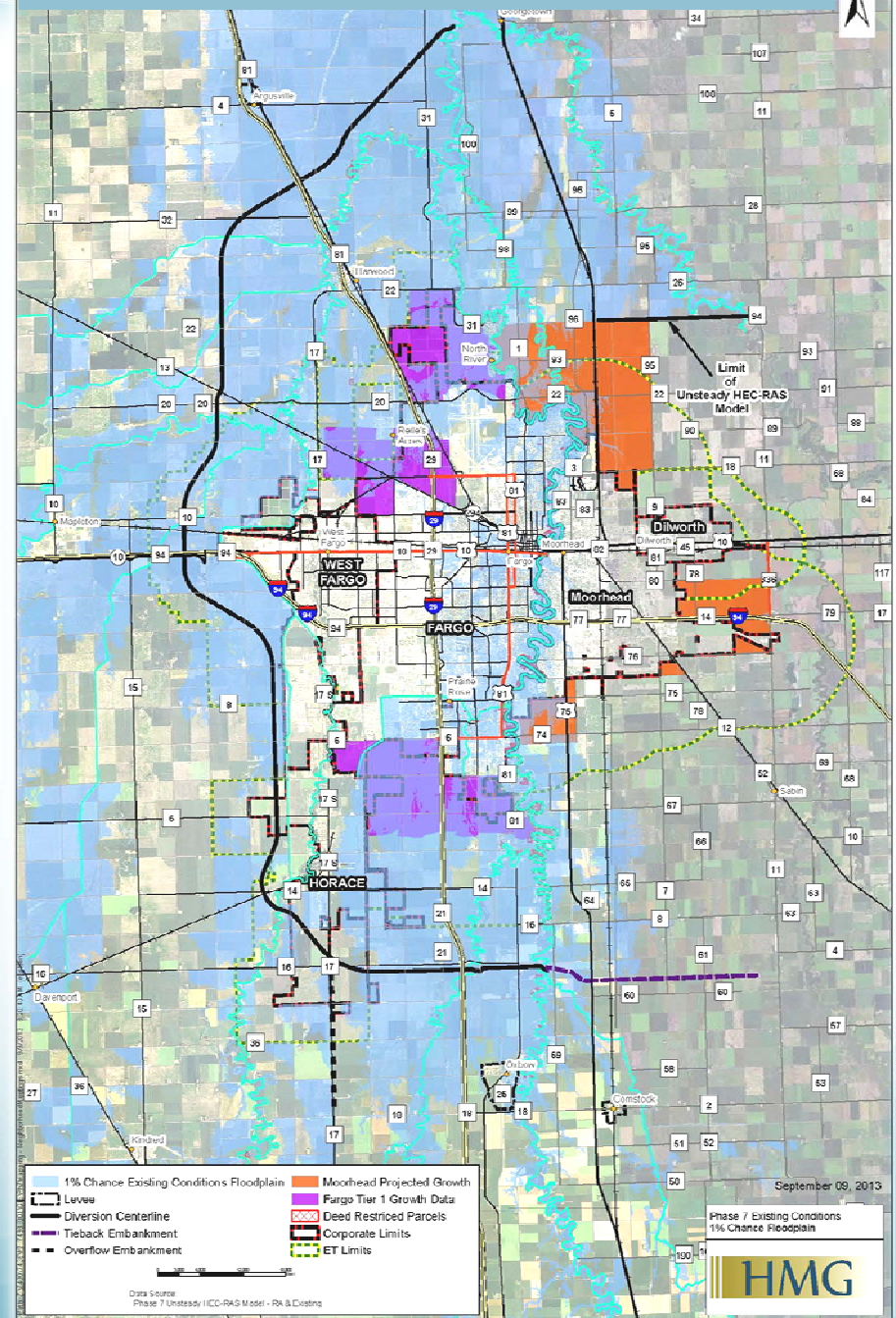
USACE 100 year no Diversion (41.1 RG)



USACE 100 year with Diversion (35' RG)



USACE 100 year no Diversion (41.1 RG)



Flood Protection Areas and Future Flood Risk

Legend:

- Fargo Municipal boundary
- Preliminary 100-year Floodplain (2011)
- Future Flood Risk
- Existing Flood Protection Projects
- Future Flood Protection Projects
- Future Flood Protection by Other
- Protected Area
- Reach 1-1
- Reach 1-2
- Reach 1-3
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- Reach 1-99
- Reach 1-100

Structures within 100-year floodplain

Structure ID	Assessed Land Value	Assessed Building Value	Assessed Total Value	Proportion Protected
1	\$1,200,000	\$1,200,000	\$2,400,000	100%
2	\$1,200,000	\$1,200,000	\$2,400,000	100%
3	\$1,200,000	\$1,200,000	\$2,400,000	100%
4	\$1,200,000	\$1,200,000	\$2,400,000	100%
5	\$1,200,000	\$1,200,000	\$2,400,000	100%
6	\$1,200,000	\$1,200,000	\$2,400,000	100%
7	\$1,200,000	\$1,200,000	\$2,400,000	100%
8	\$1,200,000	\$1,200,000	\$2,400,000	100%
9	\$1,200,000	\$1,200,000	\$2,400,000	100%
10	\$1,200,000	\$1,200,000	\$2,400,000	100%
11	\$1,200,000	\$1,200,000	\$2,400,000	100%
12	\$1,200,000	\$1,200,000	\$2,400,000	100%
13	\$1,200,000	\$1,200,000	\$2,400,000	100%
14	\$1,200,000	\$1,200,000	\$2,400,000	100%
15	\$1,200,000	\$1,200,000	\$2,400,000	100%
16	\$1,200,000	\$1,200,000	\$2,400,000	100%
17	\$1,200,000	\$1,200,000	\$2,400,000	100%
18	\$1,200,000	\$1,200,000	\$2,400,000	100%
19	\$1,200,000	\$1,200,000	\$2,400,000	100%
20	\$1,200,000	\$1,200,000	\$2,400,000	100%
21	\$1,200,000	\$1,200,000	\$2,400,000	100%
22	\$1,200,000	\$1,200,000	\$2,400,000	100%
23	\$1,200,000	\$1,200,000	\$2,400,000	100%
24	\$1,200,000	\$1,200,000	\$2,400,000	100%
25	\$1,200,000	\$1,200,000	\$2,400,000	100%
26	\$1,200,000	\$1,200,000	\$2,400,000	100%
27	\$1,200,000	\$1,200,000	\$2,400,000	100%
28	\$1,200,000	\$1,200,000	\$2,400,000	100%
29	\$1,200,000	\$1,200,000	\$2,400,000	100%
30	\$1,200,000	\$1,200,000	\$2,400,000	100%
31	\$1,200,000	\$1,200,000	\$2,400,000	100%
32	\$1,200,000	\$1,200,000	\$2,400,000	100%
33	\$1,200,000	\$1,200,000	\$2,400,000	100%
34	\$1,200,000	\$1,200,000	\$2,400,000	100%
35	\$1,200,000	\$1,200,000	\$2,400,000	100%
36	\$1,200,000	\$1,200,000	\$2,400,000	100%
37	\$1,200,000	\$1,200,000	\$2,400,000	100%
38	\$1,200,000	\$1,200,000</		

-

Houston Engineering Inc.
 10000 Katy Road, Suite 100
 Houston, TX 77054
 Phone: 281.465.1111
 Fax: 281.465.1112
 Email: info@houstoneng.com
 Website: www.houstoneng.com

So...Why implement this Comprehensive Plan?

Short Term:

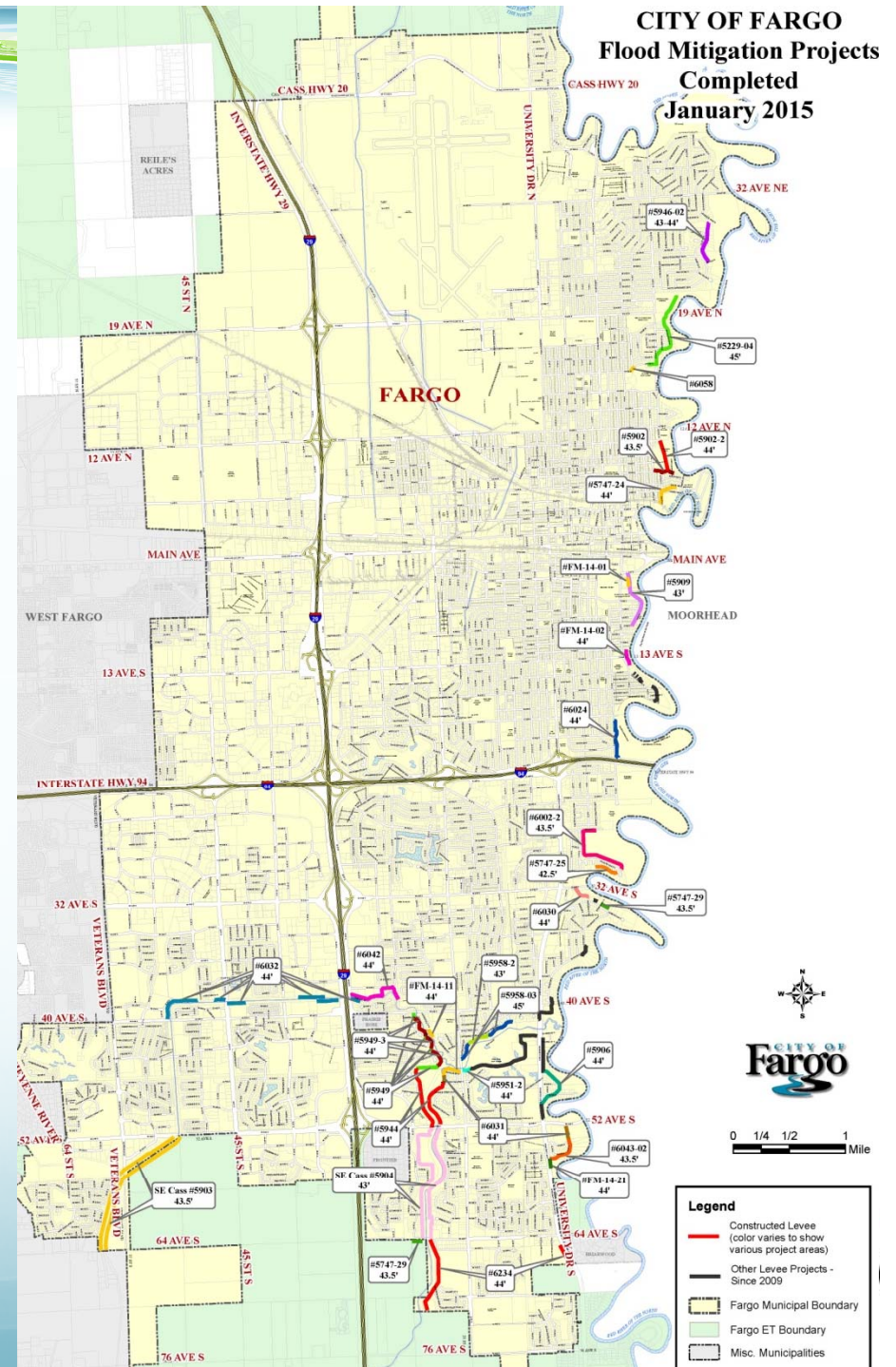
- Reduce emergency measures-immediate benefit from each project
- Provide real protection for existing homes that were built prior to the knowledge of the increased risk

Long Term:

- Upon completion of Certifiable reaches-Keep Housing Affordable for more of our population by making flood insurance available to residents at the lowest possible rates
- Combined with the FM Diversion- Provide for greater than 100 year protection for the largest population center in ND

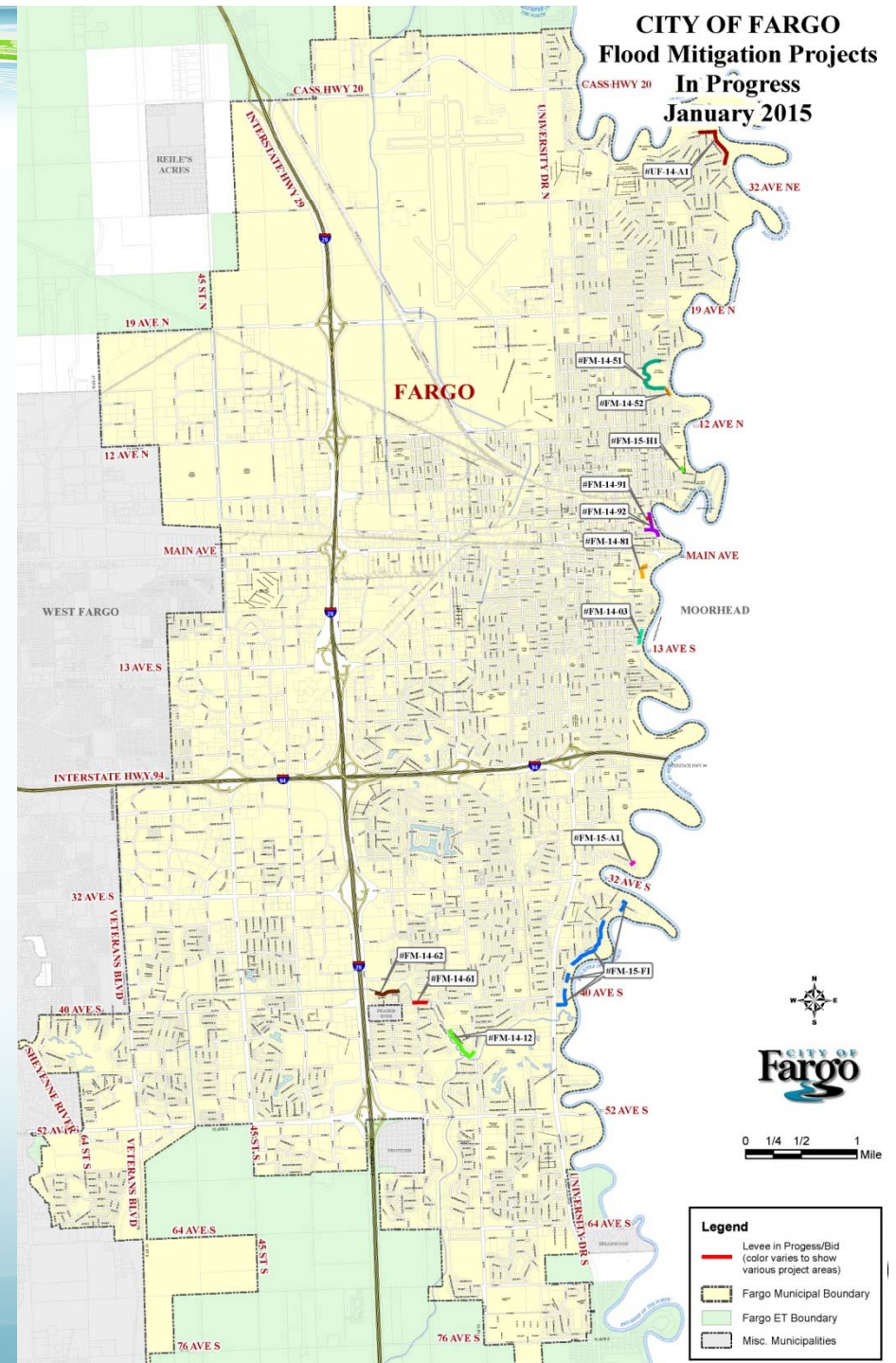
Completed Projects (Since 2009)

- Over 16 miles constructed
 - 15 miles of earth levee
 - 1 mile of floodwall
- Project Cost ≈ \$82 million
- Reduces required sandbags by approximately 4 million
- Required over 80 Private Property Easements
- 45% of the Comprehensive Plan Completed



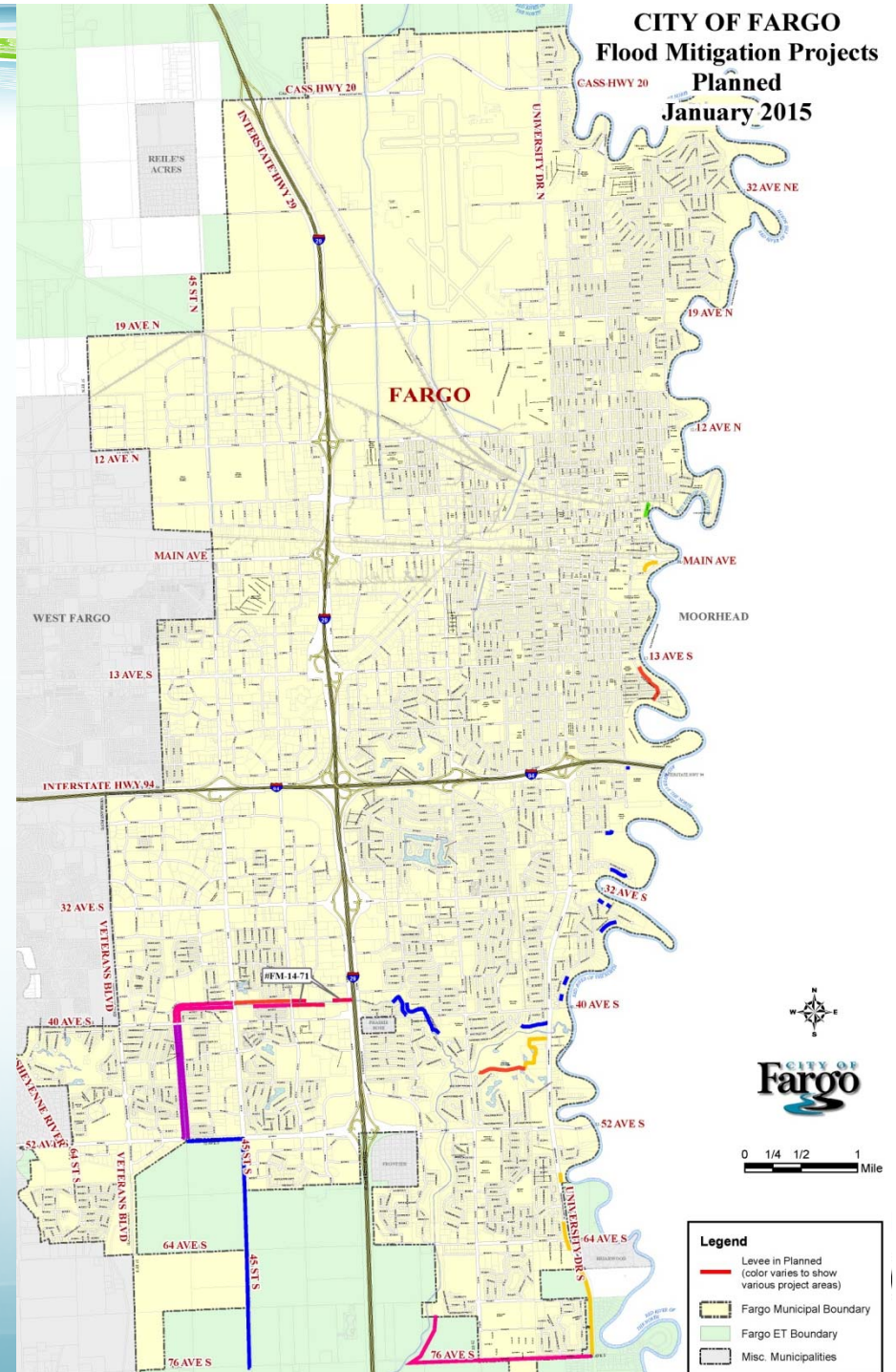
In Progress Projects

- Combination of Projects under Design or Construction
 - 6 City of Fargo Led
 - 6 Diversion Authority Led
- Over 3.5 miles in progress
- Project Cost \approx \$100 million
 - Construction Cost \approx \$67 million
- 55% of the Comprehensive Plan completed once these projects are done



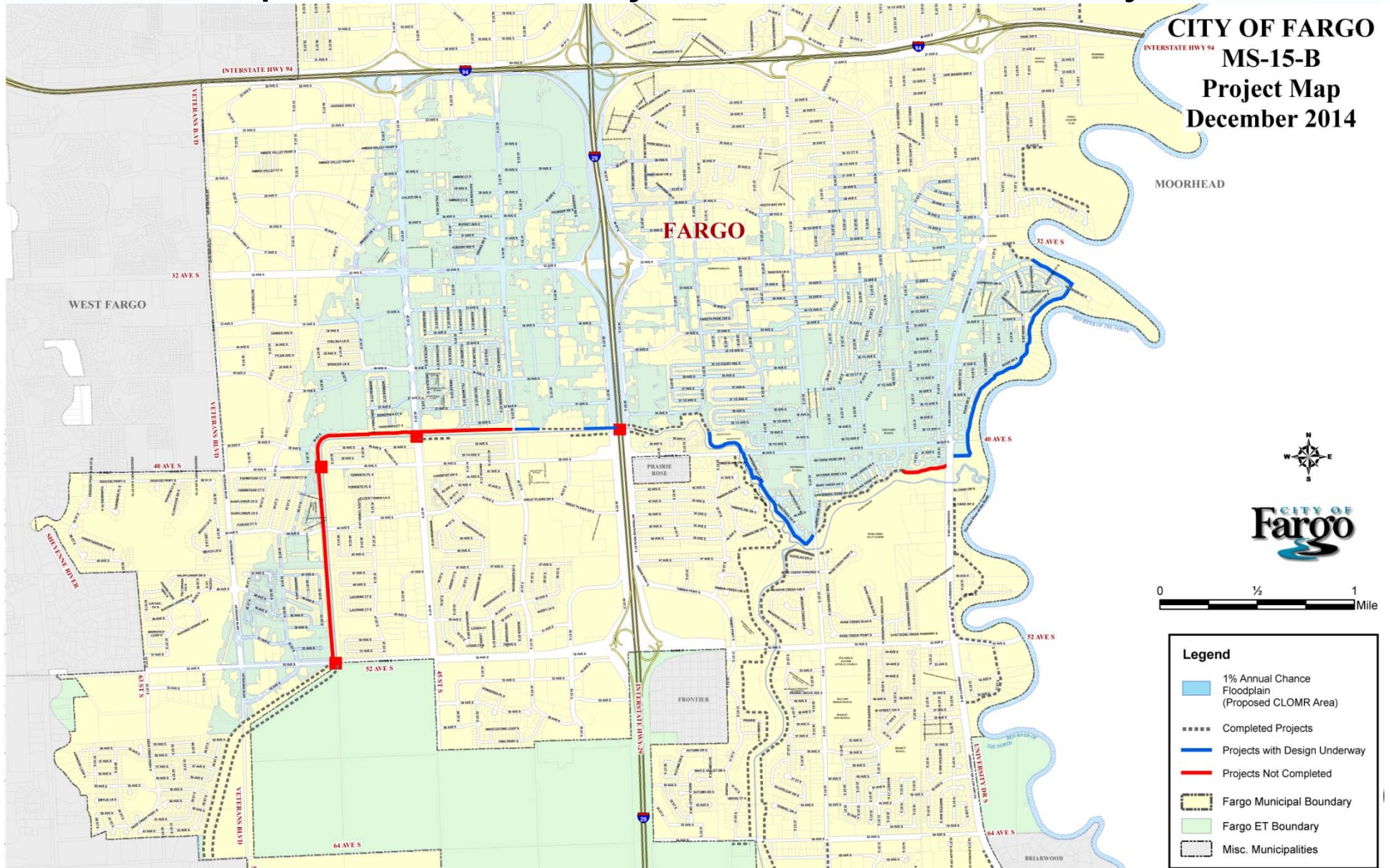
Remaining Projects

- Over 13.38 miles remaining
 - *excludes Cass County 20 Area
- Project Cost ≈ \$240 million
 - # Includes 2015 Planned Projects
 - # Does not include Diversion Authority More Flow Through Town Projects
- Type of Projects:
 - Levees along River & Legal Drains
 - Road Raises
 - Includes Interstate 29 at Drain 27
- 92% of the Comprehensive Plan would be completed



Comprehensive Plan

Example of Potentially Certifiable Levee System



Past Flood Fight Strategy

(i.e. 2009,2010,...)



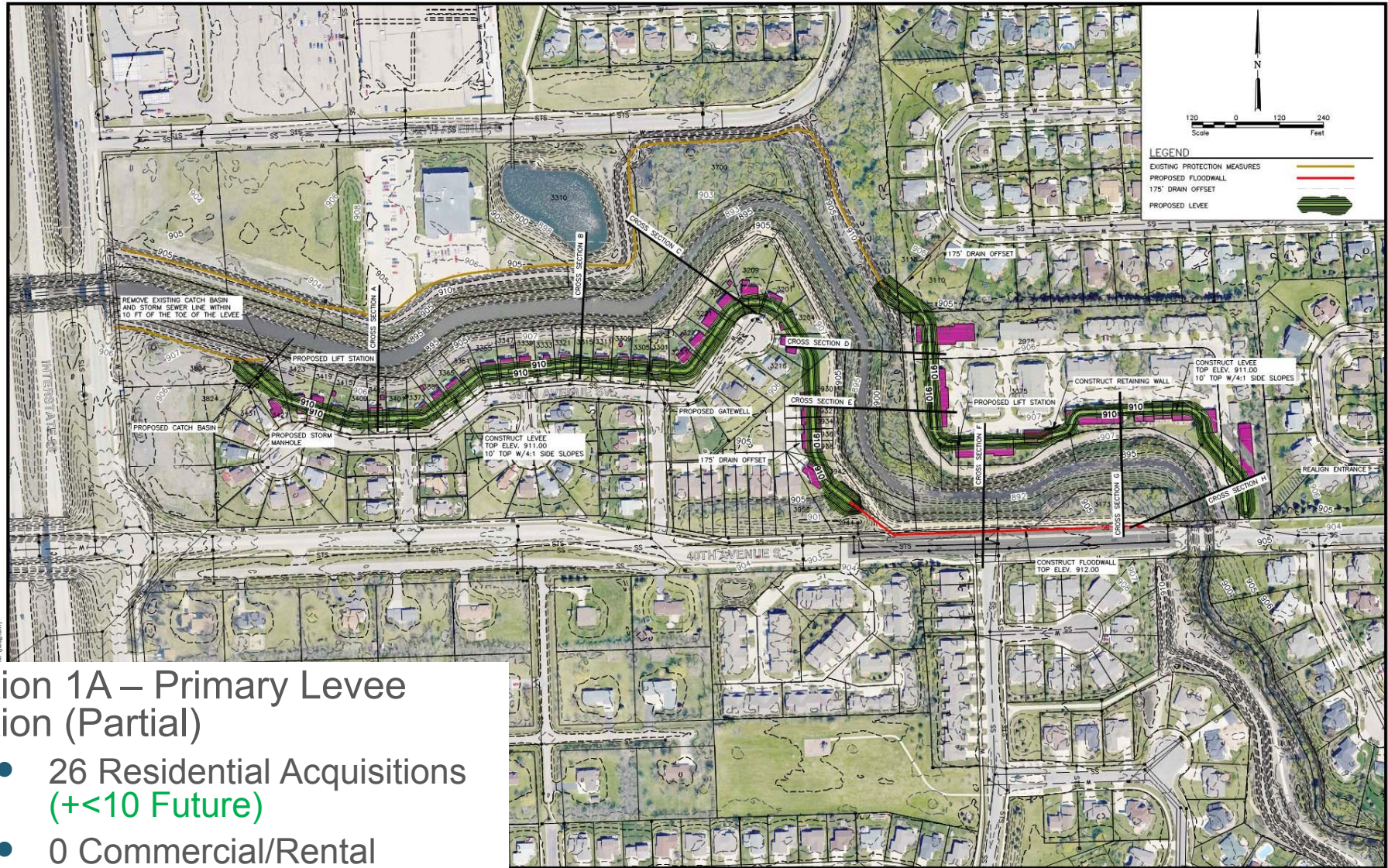
November 2013 Alternatives

- Option 1A – Primary Levee Option
- Option 1B – Primary Levee Option with Mistwood Protection
- Option 3B – Reduced Channel Modification/Levee Option

***3 Updated Options -
Based on the Review of Public Input and
Technical Issues***



Option 1A – Primary Levee Option



Option 1A – Primary Levee Option (Partial)

- 26 Residential Acquisitions (+<10 Future)
- 0 Commercial/Rental Acquisitions (+<7 Future)



Fargo

P: 701.237.5065
F: 701.237.5101

Drawn by
JMW

Checked by
KAL

Date
9-13-13

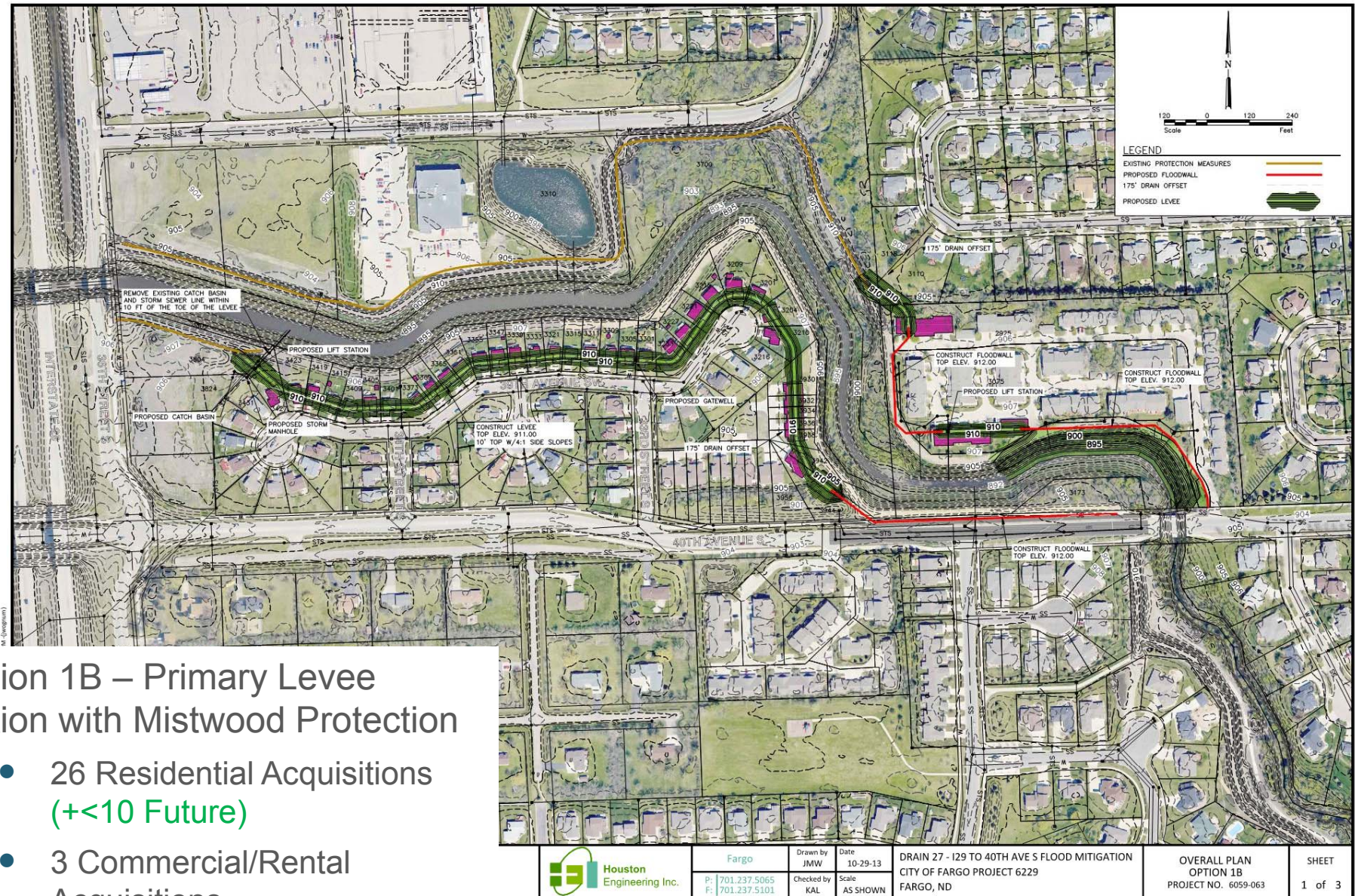
Scale
AS SHOWN

DRAIN 27 - I29 TO 40TH AVE S FLOOD MITIGATION
CITY OF FARGO PROJECT 6229
FARGO, ND

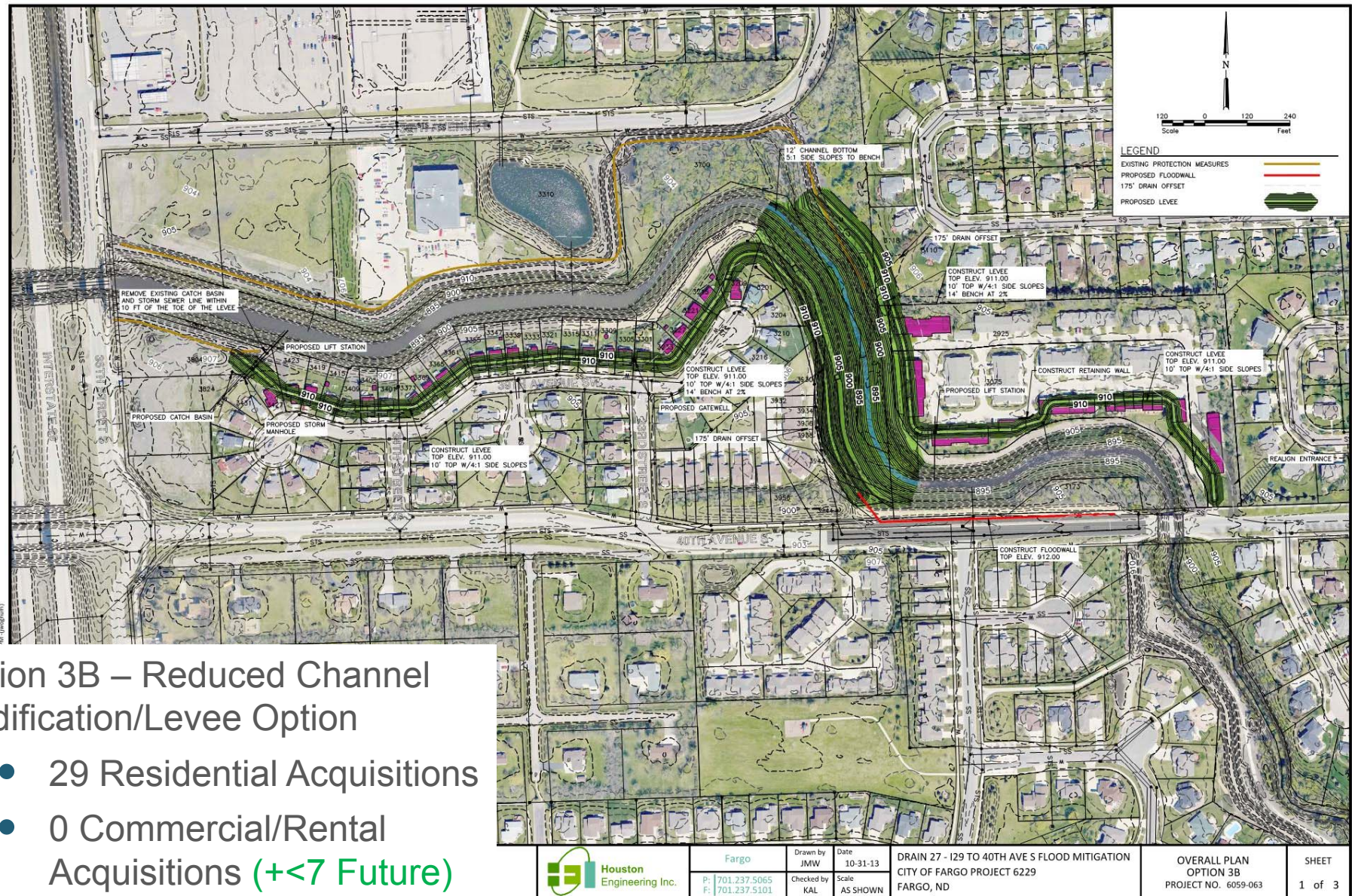
OVERALL PLAN
OPTION 1A
PROJECT NO. 6059-063

SHEET
1 of 9

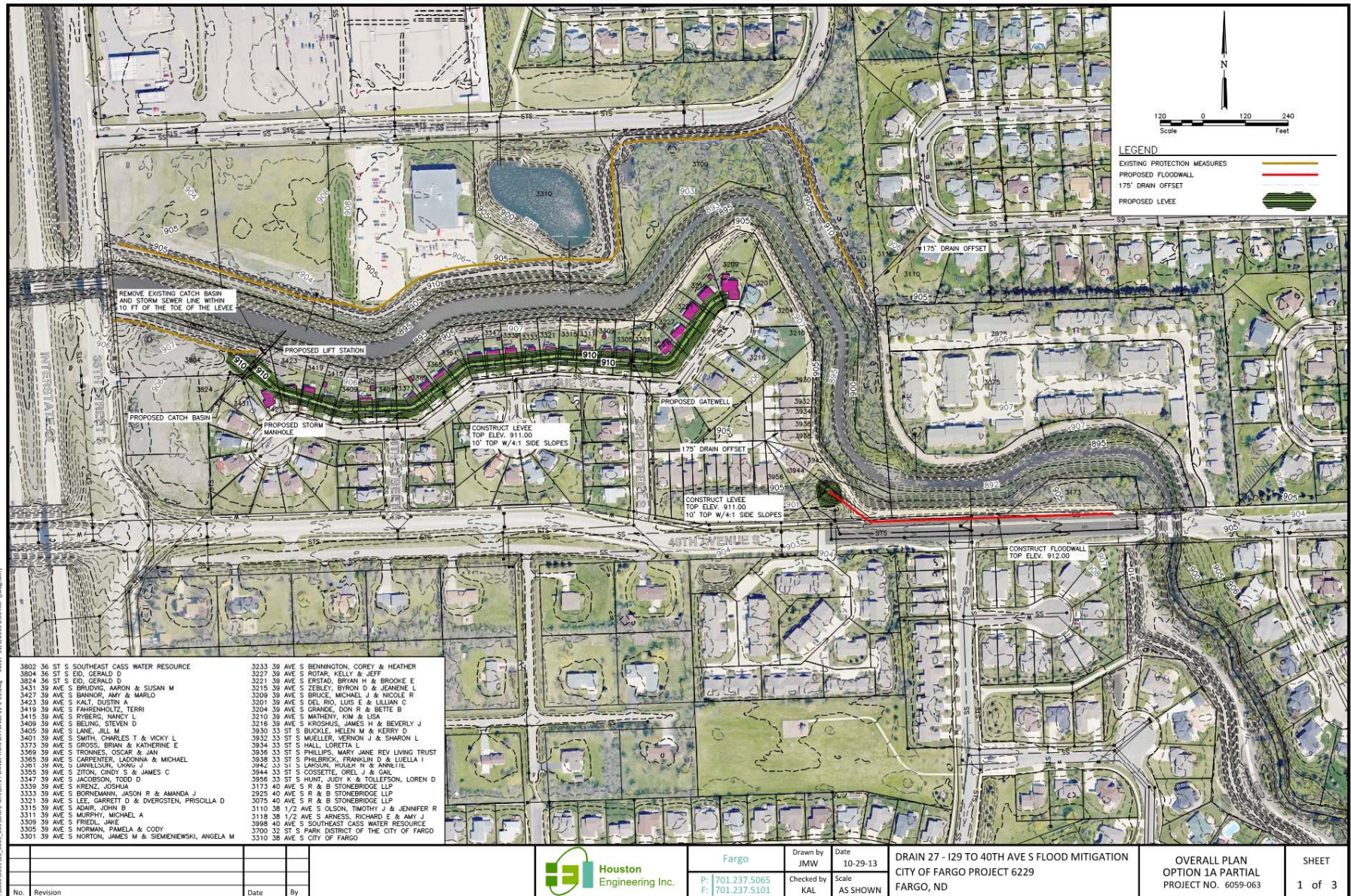
Option 1B – Primary Levee Option with Mistwood Protection



Option 3B - Reduced Channel Modification/Levee Option



Option 1A – Partial – Chose to Proceed



Phase 2 Area



No.	Revision	Date	By



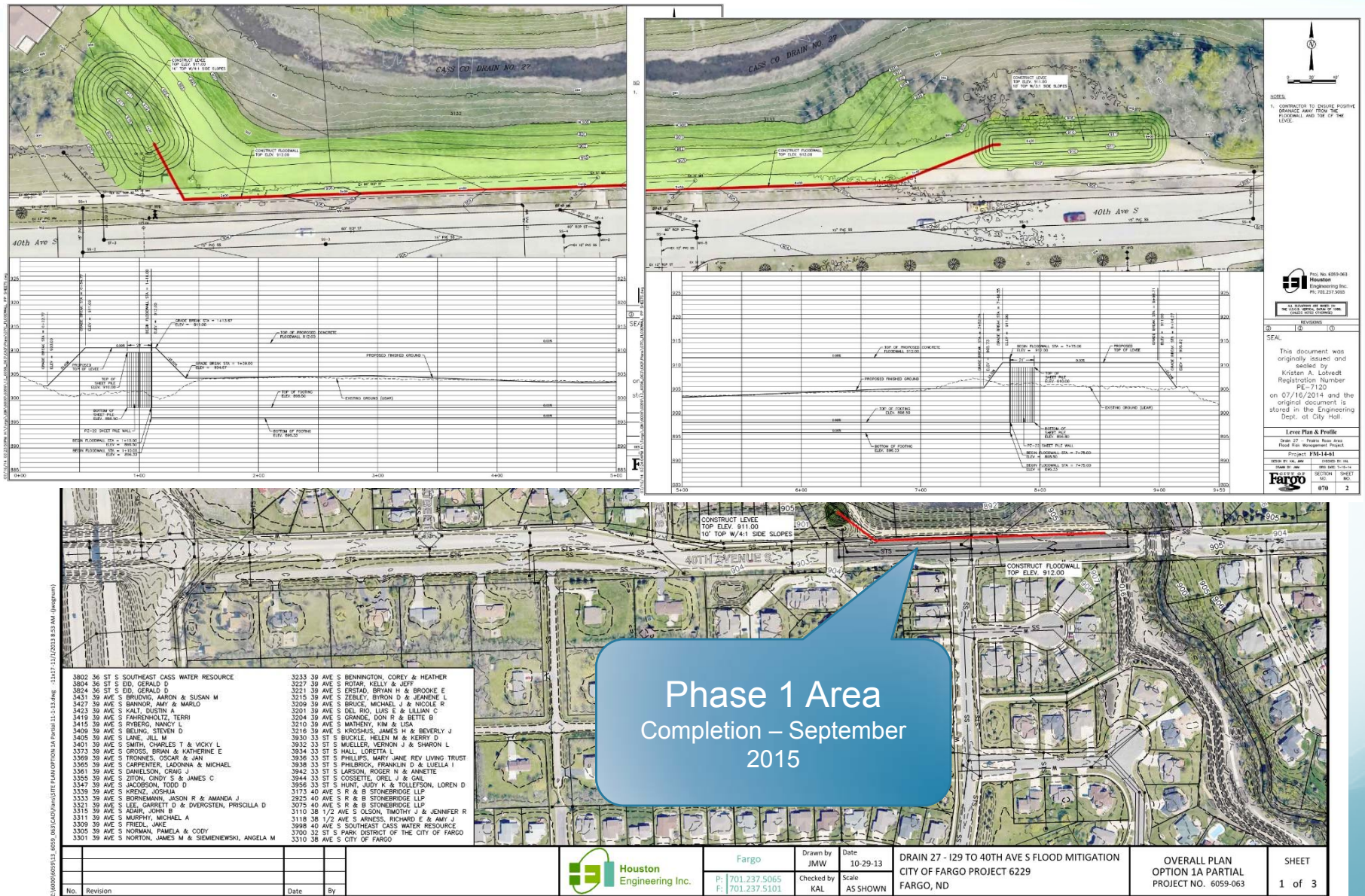
Fargo	Drawn by JMW	Date 10-29-13
P: 701.237.5065 F: 701.237.5101	Checked by KAL	Scale AS SHOWN

DRAIN 27 - 129 TO 40TH AVE S FLOOD MITIGATION
CITY OF FARGO PROJECT 6229
FARGO, ND

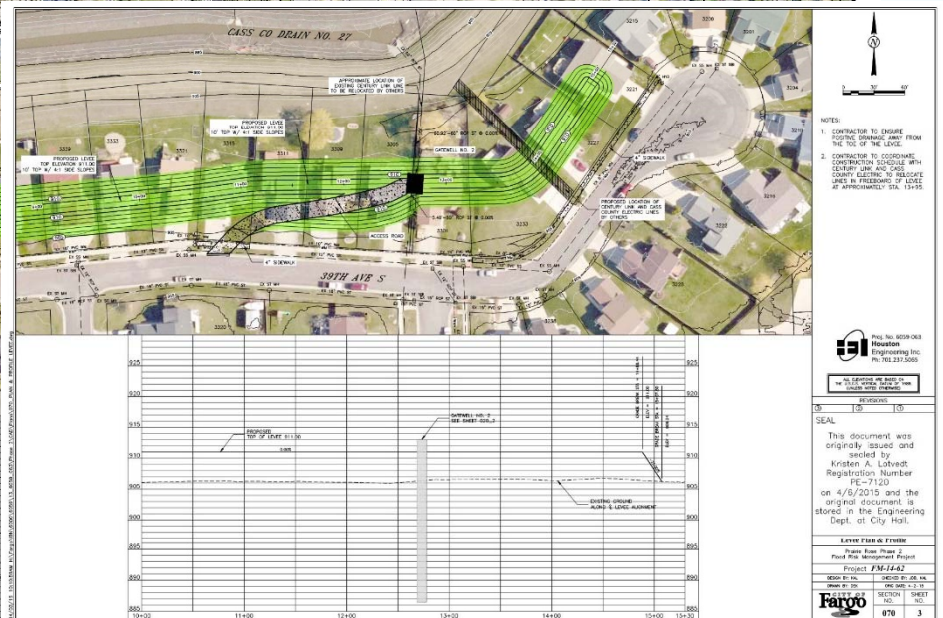
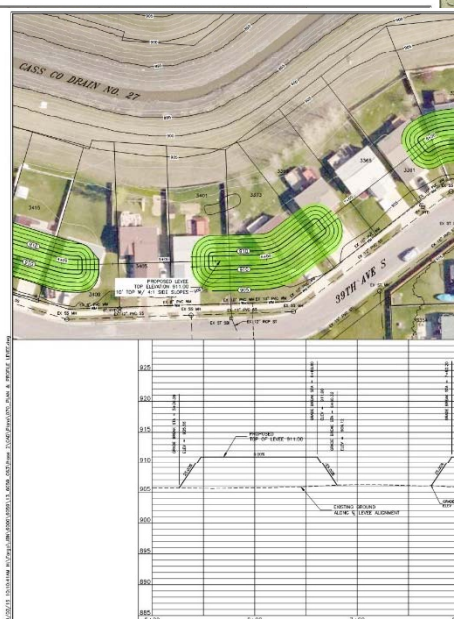
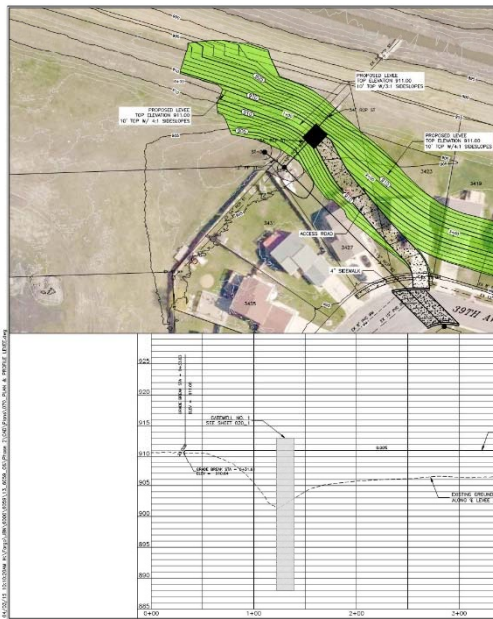
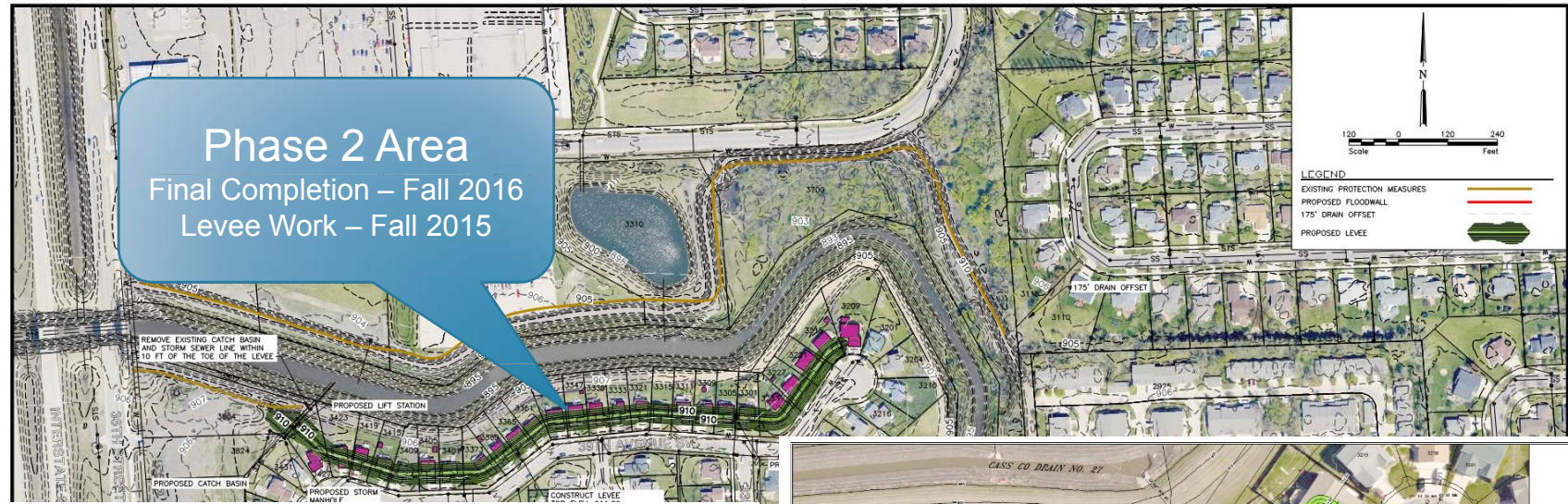
OVERALL PLAN
OPTION 1A PARTIAL
PROJECT NO. 6059-063

SHEET
1 of 3

Overview of On-going and Upcoming Work



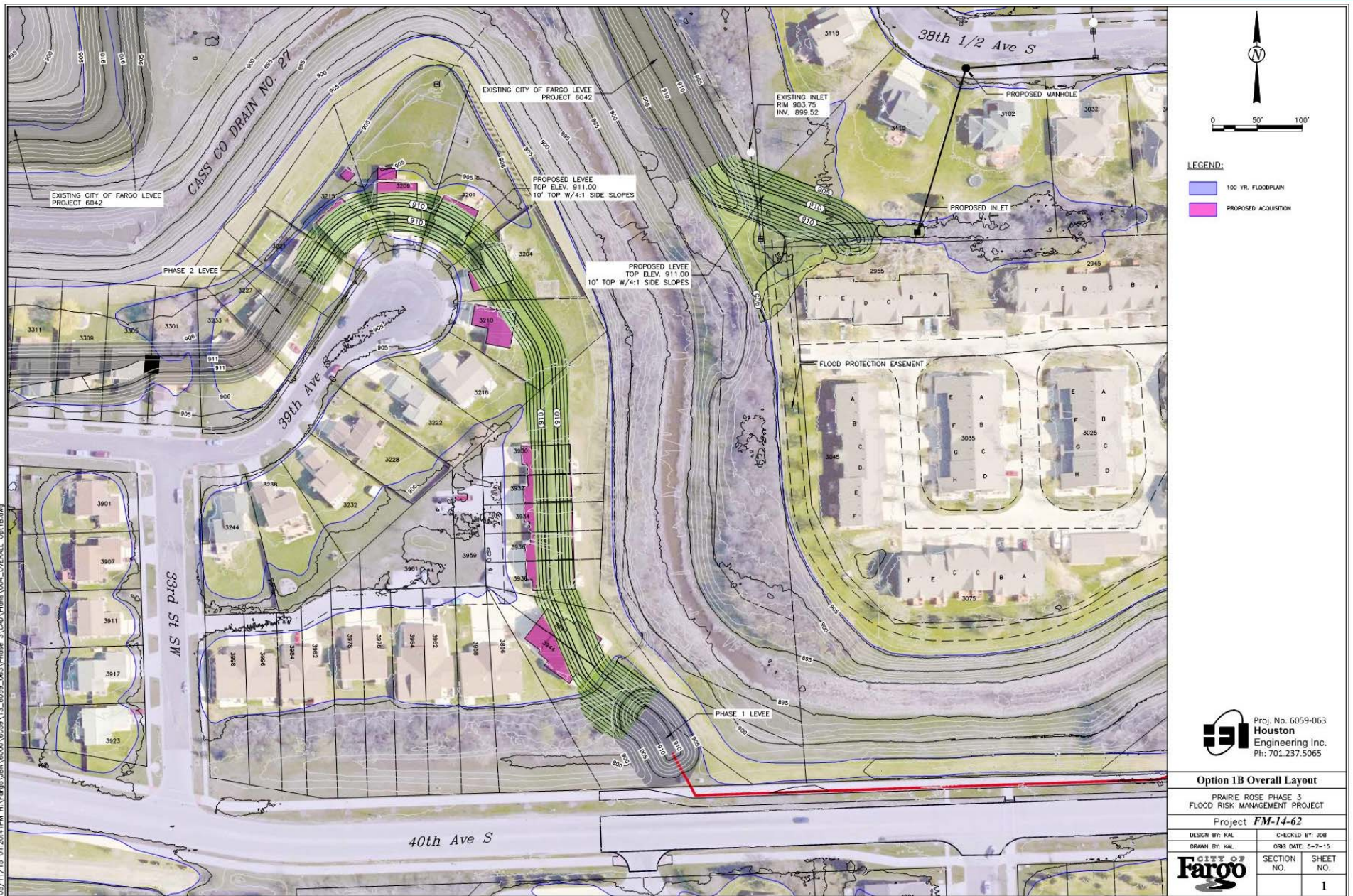
Overview of On-going and Upcoming Work



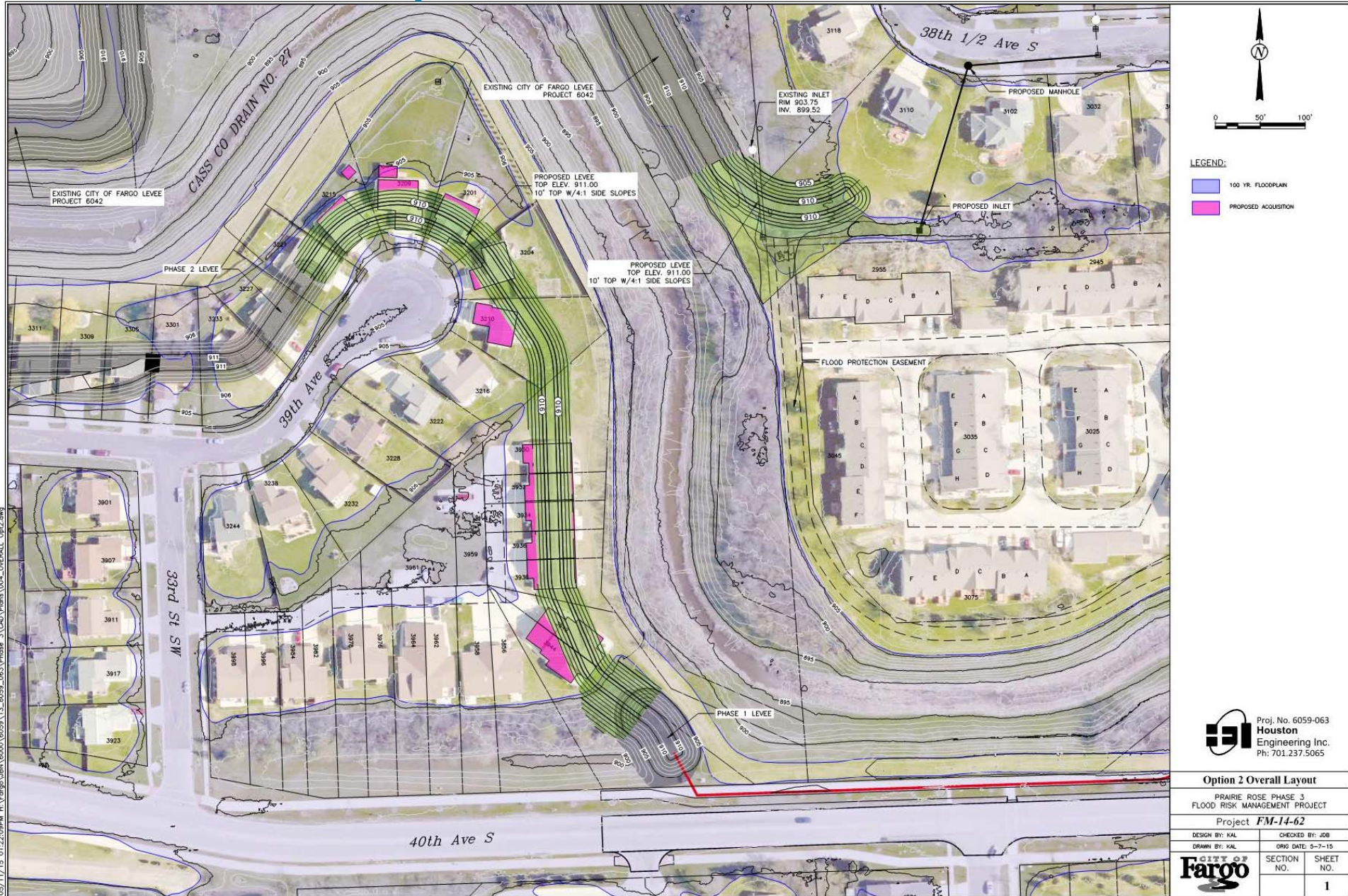
Proposed Phase 3 Work



Proposed Phase 3 Work



Proposed Phase 3 Work



Path Forward / Schedule

- Finish Phase 1 and Phase 2 Work
- Begin Acquisitions needed for Phase 3 Work
 - 12 Residential Acquisitions
 - 1 Flood Protection Easement
- Revisit Missing Phase 2 Acquisitions
 - 2 Residential Acquisitions
- Project Schedule
 - Begin Acquisition Process – June 2015 (Pending Commission 5/26)
 - Phase 3 Construction Goal – 2016

Acquisition Process Overview

- General R/W Acquisition Information
 - Residential 110% Assessed Value
 - + \$15,000 Special Assessment Credit
 - + \$5,000 Relocation Costs

