TFMA’s 2011
‘No Adverse Impact’
Survey of Texas Communities

April 5, 2012
TFMA Corpus Christi

Mike Moya, PE – Halff Associates
Mike Newman, PE – City of Temple
Brian Reis, PE – RPS Espey
Brian Wells, PE – MWM Design Group
Purpose is to determine what Texas communities are doing above the minimum FEMA standards

Developed by members of TFMA & ASCE/EWRI

On-line survey from Aug ‘11 to Feb ‘12

Workshop was held Sept. ‘11 at TFMA’s conference

Final results and paper will be presented at the ASFPM conference in May
Activities that could adversely impact another property or community will be allowed only to the extent that the impacts are mitigated or have been accounted for within an adopted community-based plan.
NAI Tools

- Principle developed
- NAI Toolkit
- Legal Aspects of NAI
- Coastal NAI funded by NOAA

www.floods.org/
Adverse impacts can result from...

- **Physical increases**
  - Peak flow rates
  - Frequency of bank full conditions
  - Stormwater pollution
  - Sediment transport (aggradation)
  - Etc.

- **Physical reductions**
  - Base flow
  - Infiltration
  - Sediment transport (degradation)
  - Etc.
What is it?

Adverse effects or impacts can be measured in terms of increased flood peaks, increased flood stages, higher flood velocities, increased erosion and sedimentation, or other impacts the community considers important.
The **Curse** of Minimum Standards

- The NFIP Regulations mandate that participating communities adopt and enforce at least the minimum standards of 44 CFR 60.3
  Reference: 44 CFR 59.2(c)

- Communities may exceed the minimum standards and are encouraged to do so
  Reference: 44 CFR 60.1(d)
The *Curse* of Minimum Standards

- When the NFIP was established in 1968, it was decided that minimum development standards would be required for participation.

- They were considered sufficient to establish a balance between an acceptable level of flood risk versus difficulty in conducting the local program.

Goal: Keep the program as simple as possible so more communities will enroll.
The **Curse** of Minimum Standards

- Even with the minimum FEMA standards, flood damages in the United States have continued to increase.

- “No Adverse Impact floodplain management is where the action of one property owner does not adversely impact the rights of other property owners, as measured by increased flood peaks, flood stage, flood velocity, and erosion and sedimentation.”
The **Curse** of Minimum Standards

- **Floodplain After Filling**
  - Factories Now Liable to Flood
  - Both Houses Previously Unaffected by Floods Now Liable to Flood
  - Increase in Flood Level

- **Fill**

- **Floodplain Before Filling**
NAI Survey of Texas Communities

Questions

1. What standards apply to quantify adverse impacts?
2. What is considered to be an insignificant impact?
3. What mitigation measures are required?
4. Which storm events are regulated?
5. What physical / chemical properties are regulated?
6. What specific challenges have you encountered?

- 50 participants
- Communities varied in size
What standards apply to quantify adverse impacts?

- **NFIP Standards**: 68.0%
- **Peak Flows**: 60.0%
- **Floodplain Elevations**: 72.0%
- **Other**: 18.0%

50 respondents
What is considered to be an insignificant impact?

- No Policy
- No increase allowed in Zone AE
- No rise in floodway
- Peak: 0 cfs – 10 cfs or 0% - 2%
- Elevation: 0 ft. – 1.0 ft
What mitigation measures are required?

- On-Site Detention: 87.5%
- On-Site Retention: 16.7%
- DS Channel Improvements: 50.0%
- Valley Storage: 39.6%
- Regional Detention: 58.3%
- Fee in Lieu: 20.8%
- Other: 16.7%

48 respondents
Which storm events are regulated?

- 2-year: 36.0%
- 5-year: 12.0%
- 10-year: 46.0%
- 25-year: 40.0%
- 50-year: 18.0%
- 100-year: 100.0%
- 250-year: 0.0%
- 500-year: 4.0%
- PMF: 8.0%
- Other: 2.0%

50 respondents
What physical / chemical properties are regulated?

- Water Quality: 46.2%
- Stream Erosion: 64.1%
- Base Flow: 12.8%
- Infiltration / GW recharge: 10.3%
- Sediment Transport: 30.8%
- Wetlands/Riparian Zones: 43.8%
- Other: 7.7%

39 respondents
Specific challenges your community has encountered

- Educating developers, engineers, and politicians
- Retention / Detention standards
- Using preliminary data to regulate
- New FEMA flood maps
- Conflicting regulations of adjacent communities/districts
- Defining “significant” impacts to upstream and downstream properties
- Lack of enforcement
- Consistency in Engineering methodologies
- Regulating multiple storm frequency events
Look for the final publication in May at the ASFPM conference in San Antonio.

Table of Contents
- Introduction
- Summary of ASFPM’s No Adverse Impact initiative
- Guiding Laws and Rules (Texas Style)
- Survey of Small Cities and Counties
- Survey of Large Cities and Counties
Thanks to our Survey and Workshop Contributors

- Diane Calhoun, TFMA
- Rob Connell, FEMA Region VI
- W. H. Espey, AAWRE, President-Elect
- Nefi Garza, City of San Antonio
- Steve Gonzales, ASCE - San Antonio
- Steve Graham, San Antonio River Authority
- John Hewitt, Assistant Workshop Coordinator
- Romin Khavari, City of Grand Prairie
- Melinda Luna, TX Section EWRI, Chair
- Sharon Mattox, Vinson & Elkins, LLP
- Sam Riley Medlock, ASPFM
- Mike Moya, Assistant Workshop Coordinator
- Michael Newman, City of Temple
- Brian Reis, Workshop Coordinator
- Roy Sedwick, TFMA
- Brian Wells, Assistant Workshop Coordinator