BACTERIA IMPLEMENTATION GROUP (BIG)

**Spring Meeting
May 24, 2022**

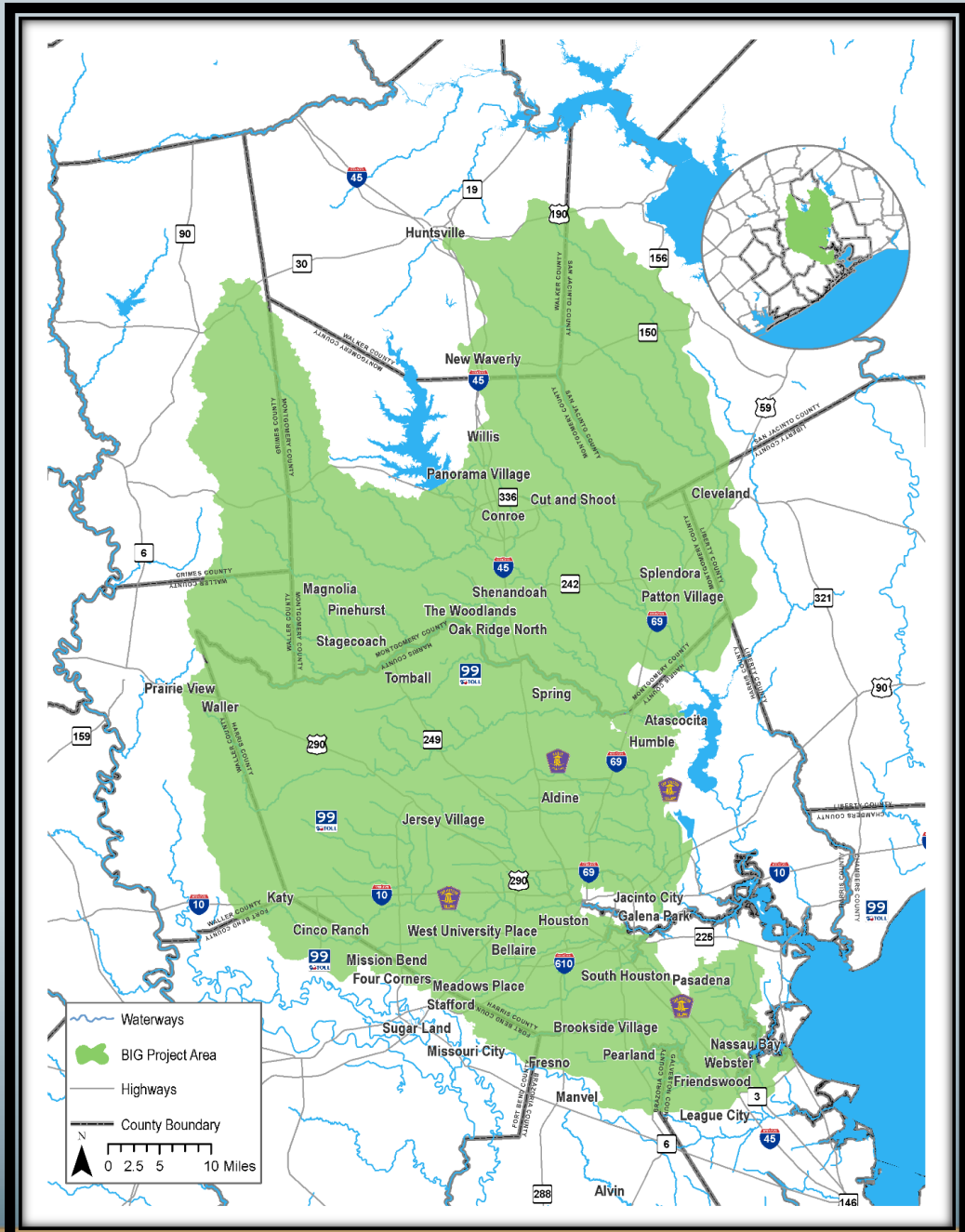Serving Today • Planning for Tomorrow

AGENDA

- **Call to Order/Introductions**
- **Quorum Certification**
- **Review and Approve Changes to the BIG Roster**
- **Review and Approve Minutes**
- **Public Comment**
- **Item One**:   I-Plan Update
- **Item Two:**   2021 Annual Report
- **Item Three:** 2022 Annual Report
- **Item Four:**   TMDL Program Update
- **Item Five:**   Implementation Project Presentations
- **Item Six:**   Other Business
- **Adjourn**

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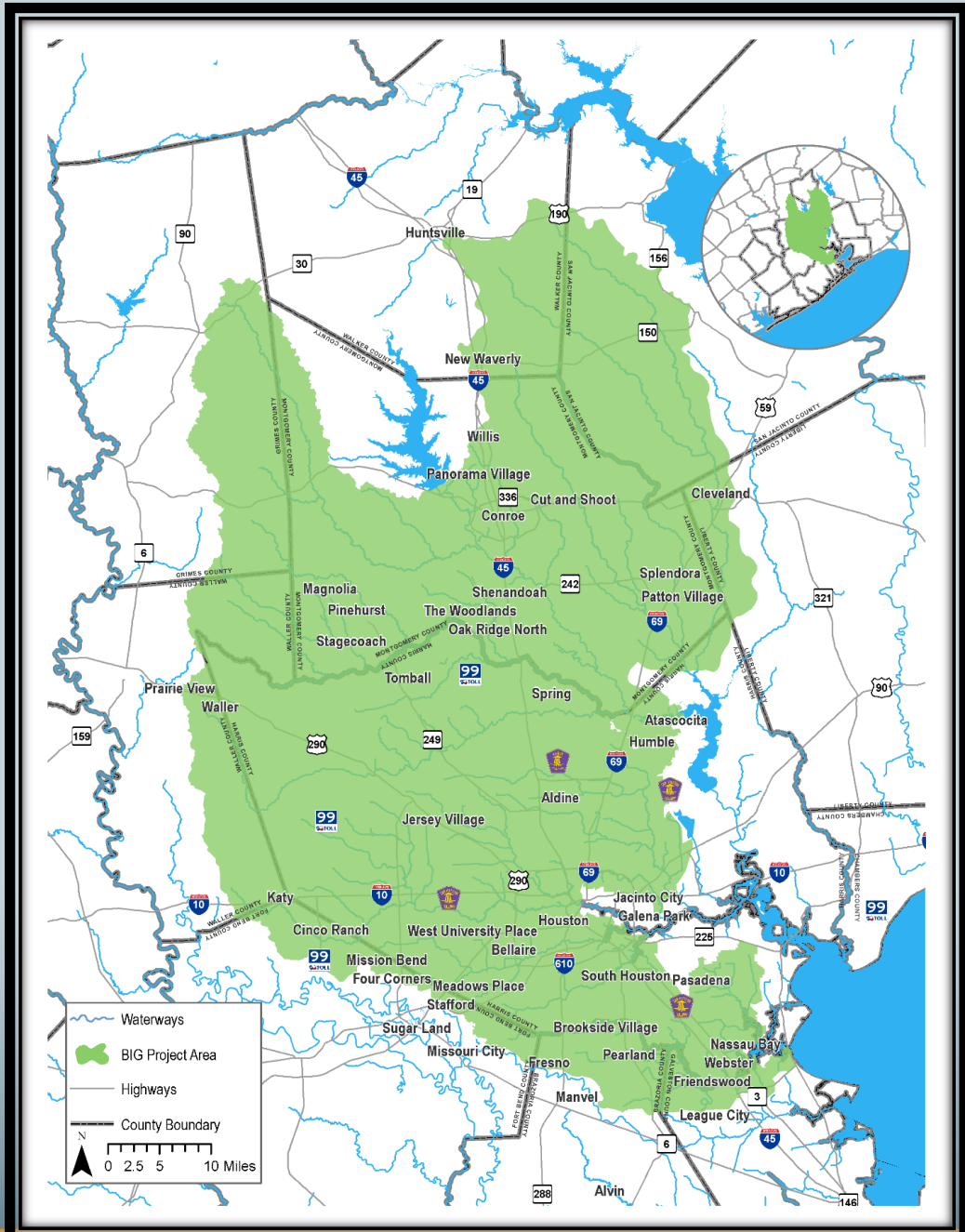- **Item Six:**   Other Business
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ROSTER UPDATES

- **BIG Membership**
  - **Cassidy Ince** (Agriculture) Texas Forest Service
  - **Paul Nelson** (Conservation) Bayou Preservation Association

- **Alternates**
  - **Mac Martin** (Agriculture) Texas Forest Service
  - **Rose Sobel** (Conservation) Bayou Preservation Association

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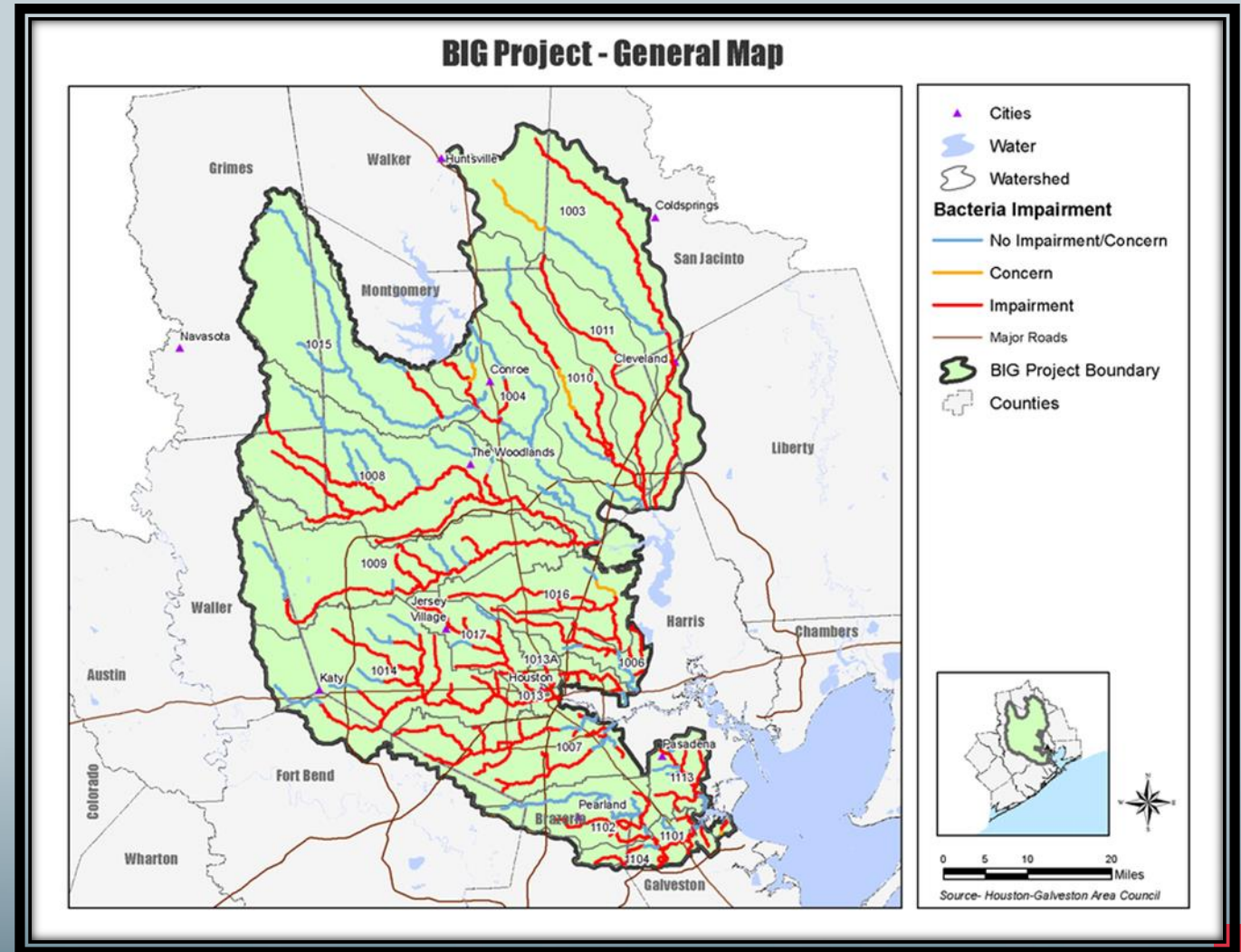
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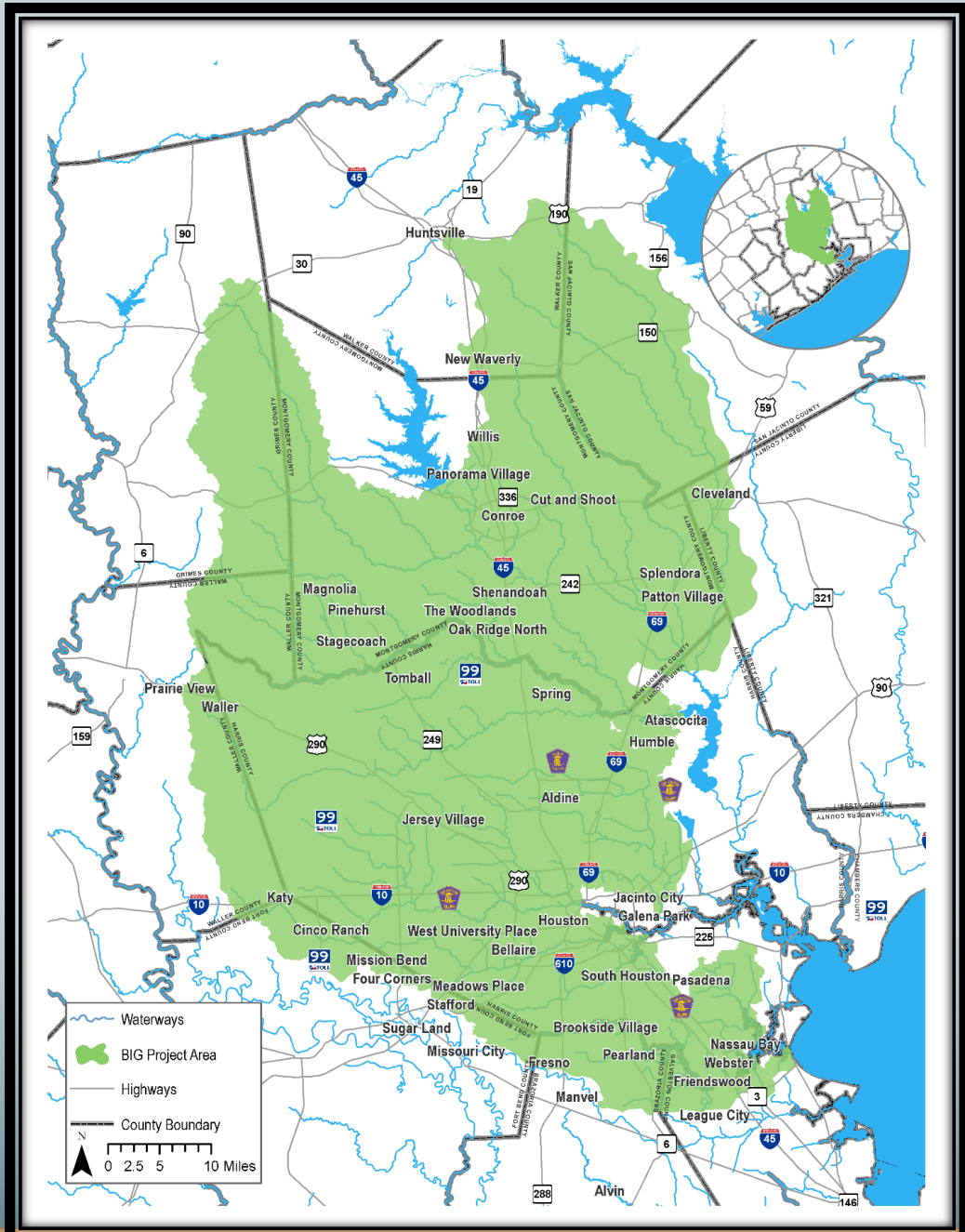
I-Plan Update

I-Plan Format

- Essentially the same
- Strategy Summary
- Activity
  - Action
  - Background
  - Metric
  - Milestone
  - Monitoring

BIG Project - General Map

1.0 Wastewater Treatment Facilities

- Implementation Activities

    1.1 Encourage More Rigorous Bacteria Monitoring

    1.2 Continue to Track the Use of More Strict Bacteria Limits within the BIG Project Area
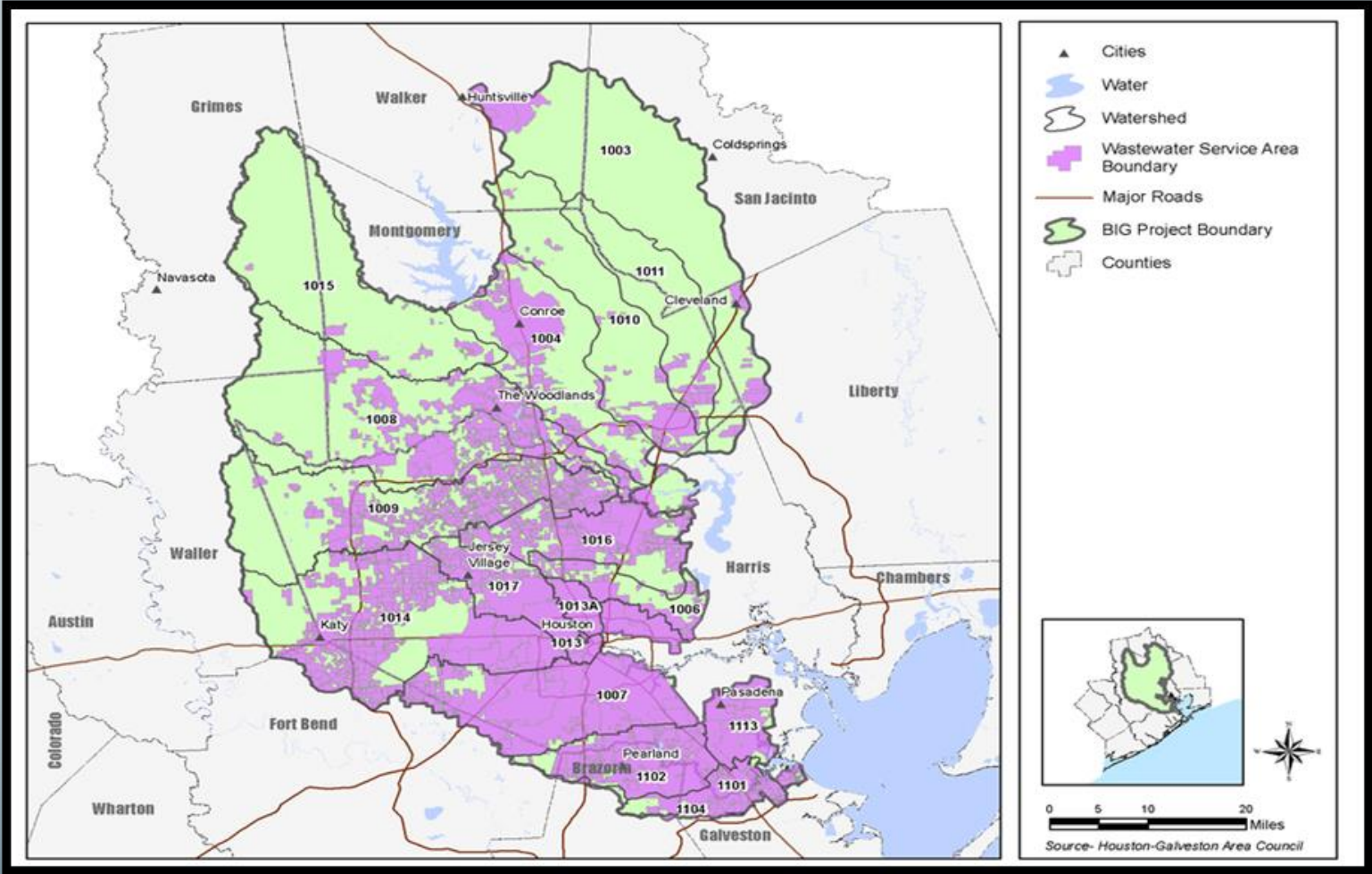
    1.3 Enhance WWTF Compliance

    1.4 Track Changes to Improve Design and Operation Criteria for New Plants

    1.5 Upgrade Facilities

    1.6 Consider Regionalization of WWTFs

    1.7 Use Treated Effluent for Facility Irrigation

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WWTF Service Area

Discharge Monitoring Report Compliance

Year	Total Geomean Results Reported from Permittees with Limits in Permits	Samples Exceeding Geomean Limit	Percent Samples Exceeding Geomean Limit	Geomean Percent Compliance	Total Grab/Max Results Reported from Permittees with Limits in Permits	Samples Exceeding Grab/ Max Limit	Percent Samples Exceeding Grab/Max Limit	Grab/Max Percent Compliance
2012	2,686	33	1.2	98.8	2,670	166	6.2	93.8
2013	3,905	39	1.0	99.0	3,998	200	5.0	95.0
2014	4,433	38	0.9	99.1	4,594	131	2.9	97.1
2015	4,558	21	0.5	99.5	4,728	182	3.8	96.2
2016	4,636	23	0.5	99.5	4,810	127	2.6	97.4
2017	4,720	31	0.7	99.3	4,904	153	3.1	96.9
2018	4,793	15	0.3	99.7	5,016	115	2.3	97.7
2019	5,060	33	0.7	99.3	5,160	164	3.2	96.8

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WWTFs by Size

Permitted Flow (MGD)	Number of Domestic WWTF	Percentage of Domestic WWTF	Number of Industrial WWTF	Percentage of Industrial WWTF
0 to less than 0.1	125	24.70%	10	58.82%
0.1 to less than 0.5	136	26.88%	5	29.41%
0.5 to less than 1	113	22.33%	1	5.88%
1 to less than 5	100	19.76%	1	5.88%
5 to less than 10	19	3.75%	_	_
10 or greater	13	2.57%	_	_
Total	**506**	**100.00%**	**17**	**100.00%**

WWTF Permitted Flow
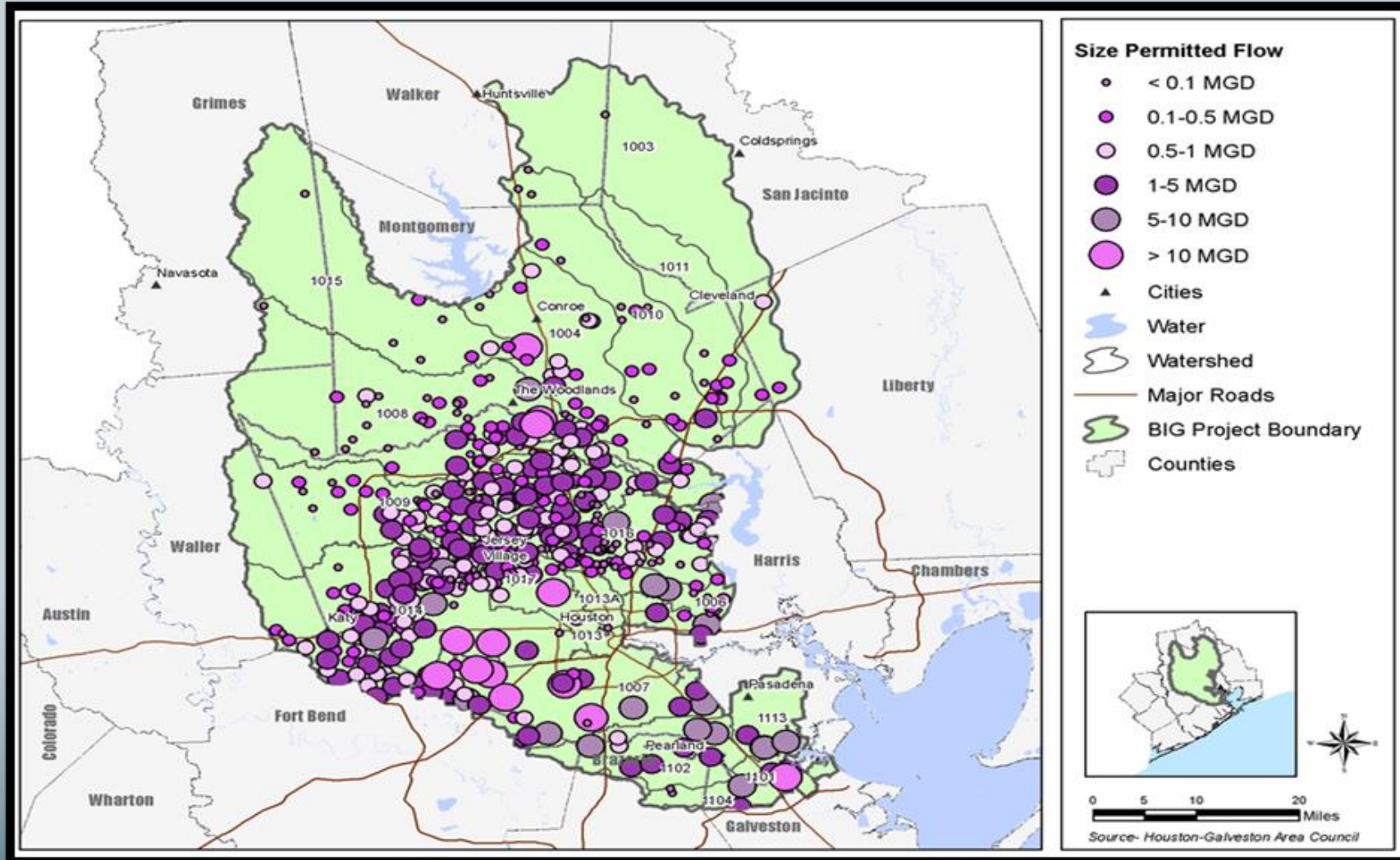
Percent Exceedances
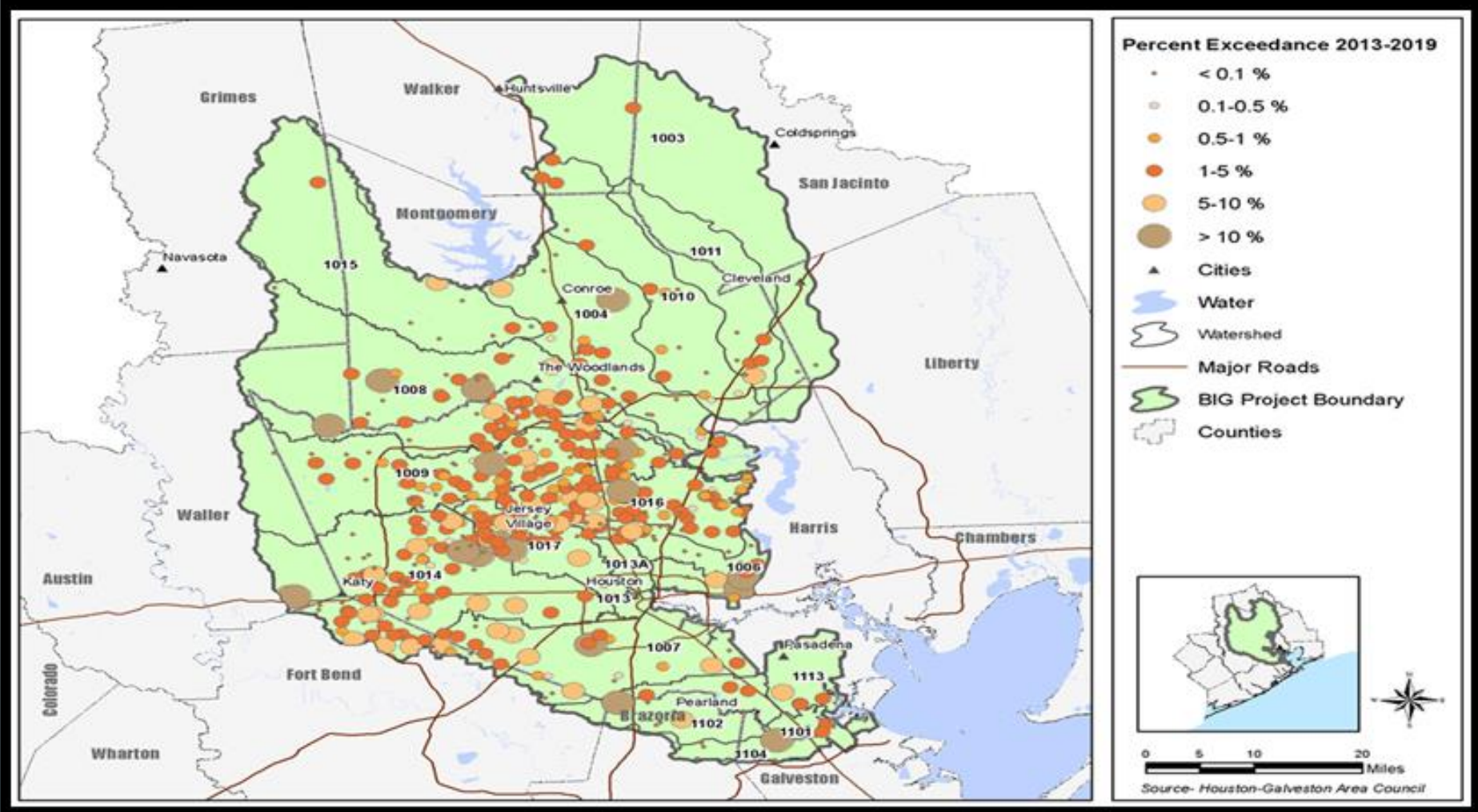
Example 1.3 Enhanced WWTF Compliance

- **Metric**
  - DMR and Harris County Pollution Control compliance data.

- **Milestone**
  - Work with WEAT, TRWA, TWUA, and AWBD to identify and work with WWTFs underperforming their peers though targeted education.
  - Offer at minimum one WWTF technical workshop per year.

- **Monitoring**
  - Programmatic Goal: Number of targeted outreach opportunities.
  - Environmental Goal: CRP Analysis, Change in AU impairment status

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2.0 Sanitary Sewer Systems

- Implementation Activities
  - 2.1 Develop Utility Asset Management Programs for Sanitary Sewer Systems
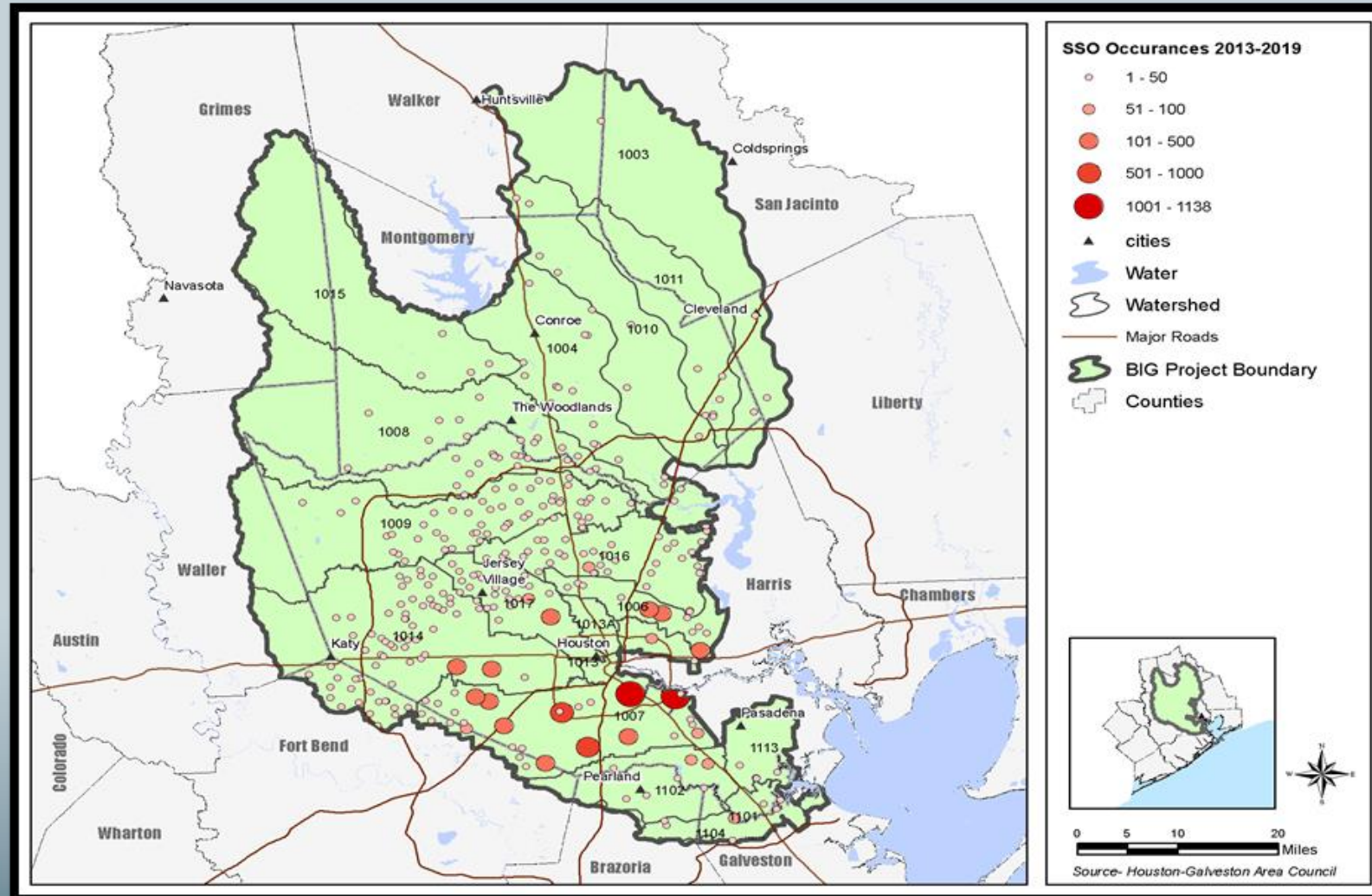 - 2.2 Address Fats, Oils, Grease and Wipes
  - 2.3 Encourage Appropriate Mechanisms to Maintain Function at Lift Stations
  - 2.4 Improve Reporting Requirements for Sanitary Sewer Overflows
  - 2.5 Strengthen Controls on Subscriber Systems
  - 2.6 Penalties for Violations

Sanitary Sewer Overflow Occurrences

Example 2.2 Address Fats, Oils, Grease and Wipes

■ **Metric**

- Assessment of #Fats, Oils, and Grease programs via Municipal Separate Storm Sewer Systems (MS4)

- WWTF technical workshop.

■ **Milestone**

- # Residents Reach

- #MS4s reporting.

- Offer at minimum one WWTF technical workshop per year.

■ **Monitoring**
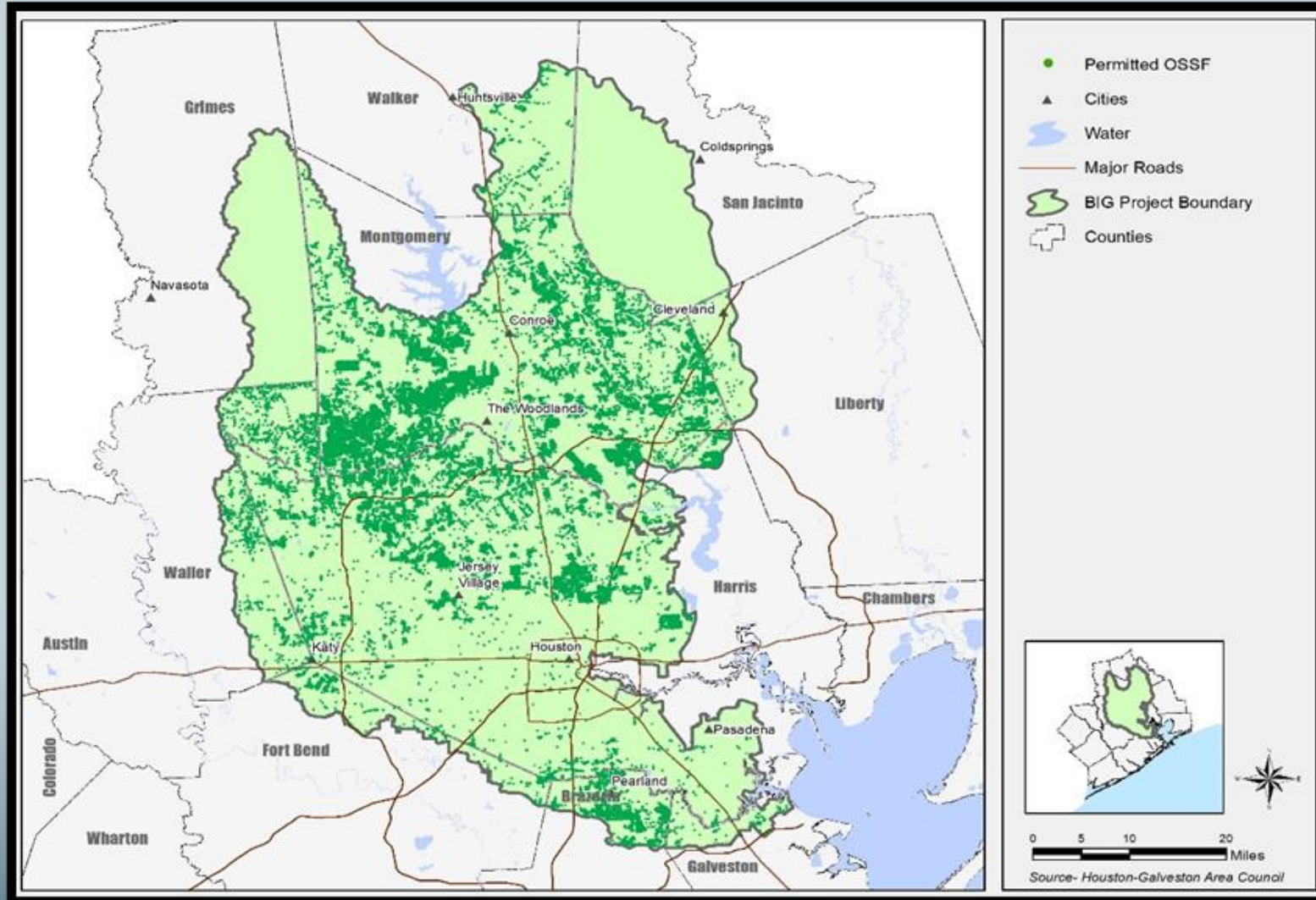
- Programmatic Goal: Report metric, # workshops provided.
- Environmental Goal: CRP Analysis, Change in AU impairment status

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3.0 Onsite Sewage Facilities

- Implementation Activities:

  3.1 Identify and Address Failing Systems

  3.2 Address Inadequate Maintenance of OSSFs

  3.3 Legislation and Other Regulatory Actions

Permitted OSSFs

Example 3.1 Identify and Address Failing Systems

■ *Metric*

- Prepare Regional Plan

- Map OSSFs

■ *Milestone*

- Annual OSSF Map update; San Jacinto and Grimes County data year 2

- # of OSSFs pumped out, repaired, replaced or abandoned

- Regional Plan in year 3; Implement year 4-10; Reevaluate year 10

■ *Monitoring*

- Programmatic Goal: Map revised, #OSSFs pumped out, repaired, replaced or abandoned

- Environmental Goal: CRP Analysis, Change in AU impairment status

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4.0 Stormwater

- Implementation Activities:

    4.1 Continue Existing Stormwater Programs

    4.2 Model Best Practices

    4.3 Encourage Expansion of Stormwater Management Programs

    4.4 Promote Recognition Programs for Developments that Voluntarily Incorporate Bacteria Reduction Measures

    4.5 Targeted Stormwater Outreach Programs

    4.6 Encourage Incentives for Bacteria Reduction Measures

Census Designate Urbanized Area
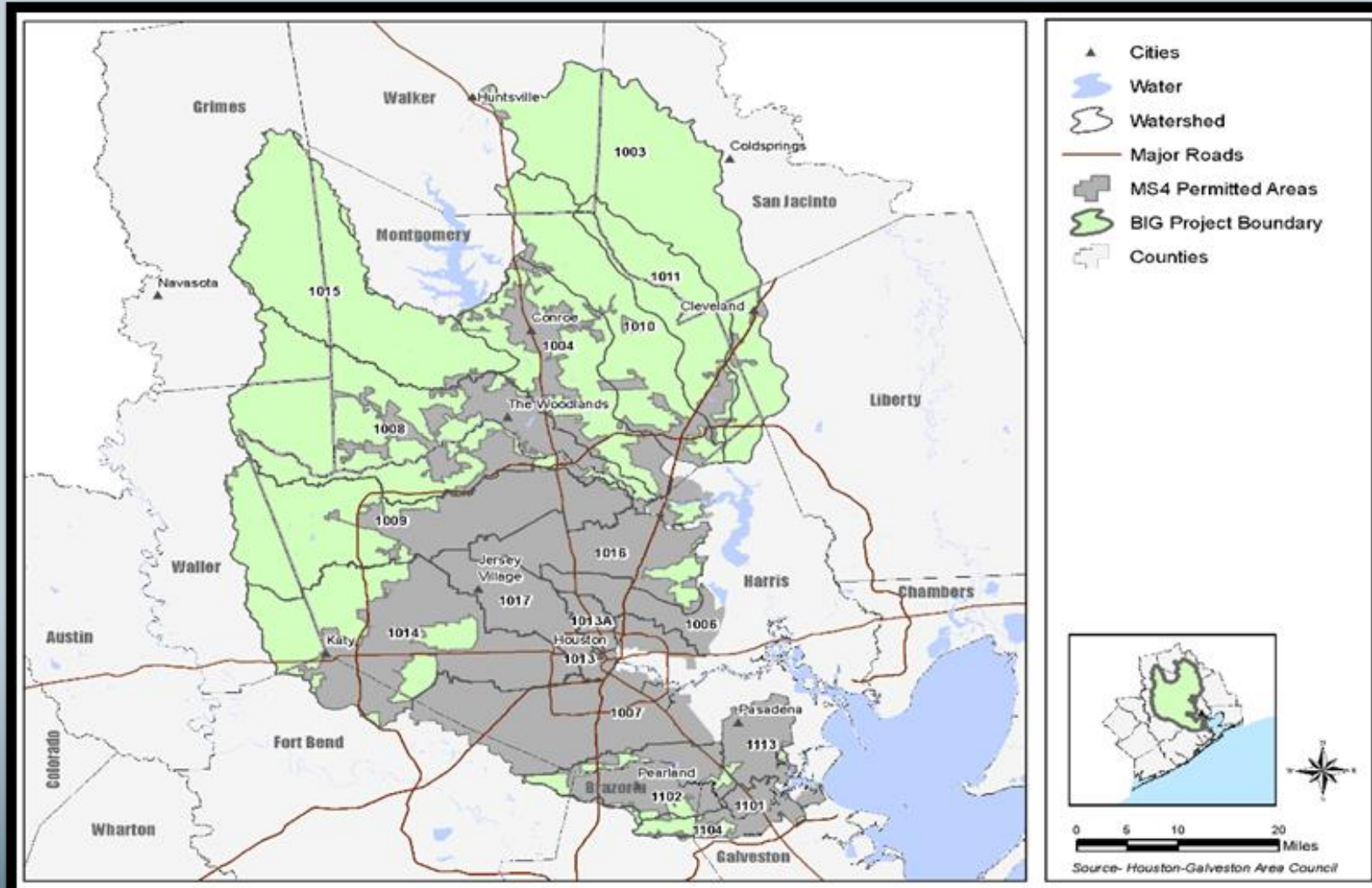
Model Practices
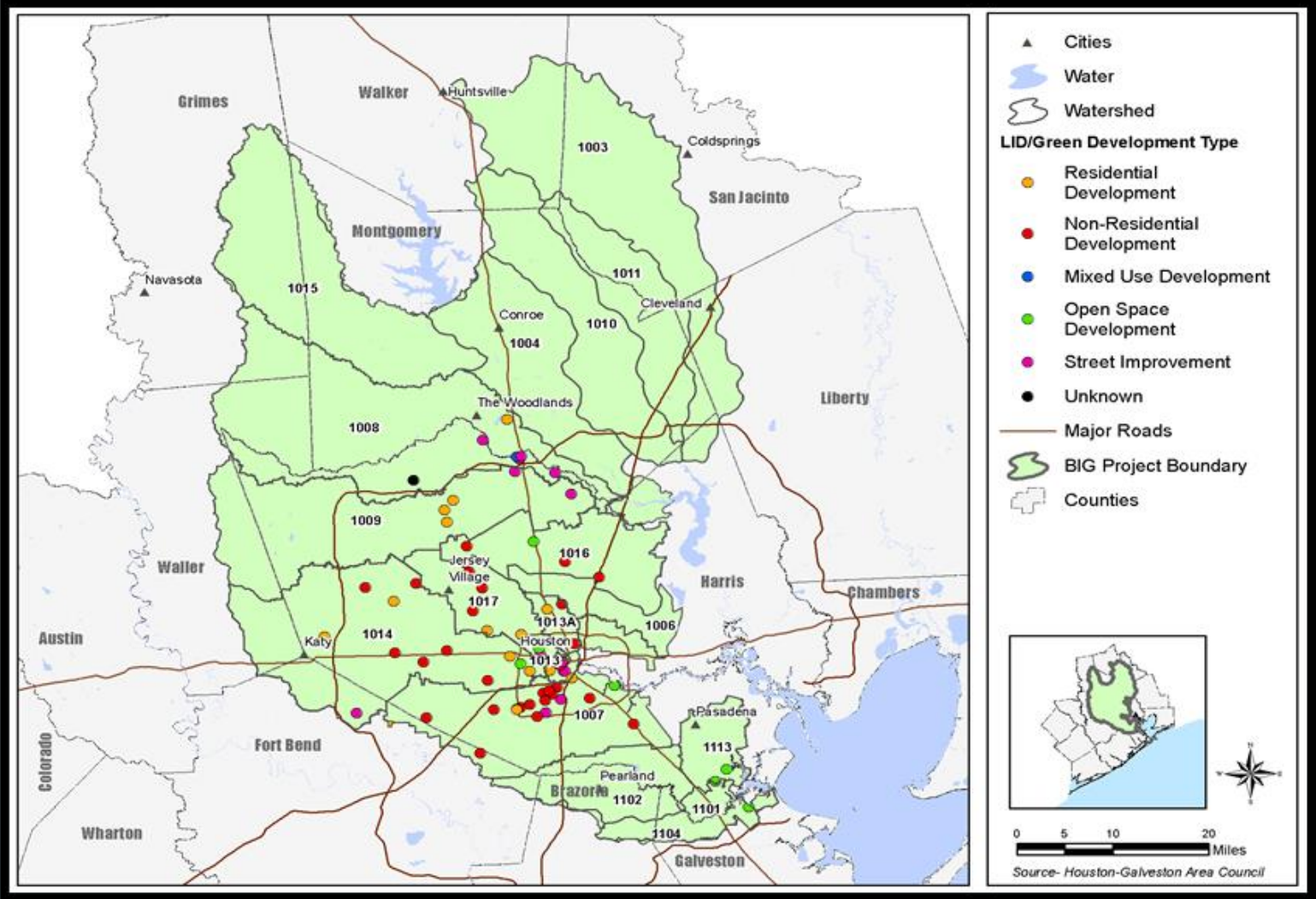
Example 4.2 Model Best Practices

- **Metric**

    - Update LID/GI tracker

    - Water Innovation Strategies of Excellence (WISE) Awards

    - Stormwater workshop

- **Milestone**

    - Annually: Update tracker, WISE awards, Stormwater workshop

- **Monitoring**

    - Programmatic Goal: #Attendance at workshops, #WISE award applicants, #LID projects

    - Environmental Goal: CRP Analysis, Change in AU impairment status

5.0 Construction

- Implementation Activity:

  5.1 Encourage Increased Compliance and Enforcement of Stormwater Management Permits

Development Pressure

Source- Houston-Galveston Area Council
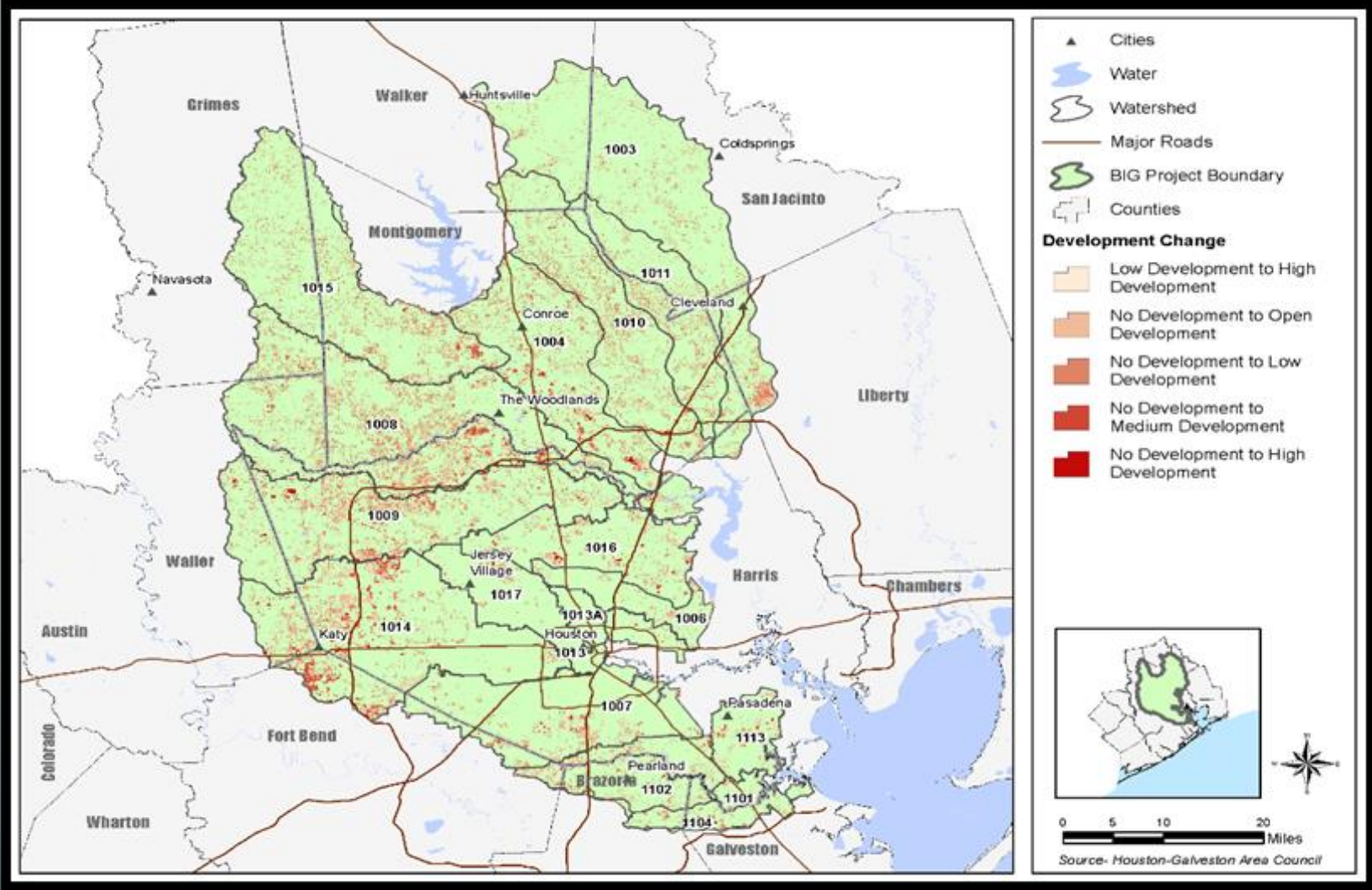
Example 5.1 Encourage Increased Compliance and Enforcement

▪ *Metric*

- Workshops, meetings and events targeting MS4s

▪ *Milestone*

- Offer at minimum one technical workshop per year

- WISE awards once per year

▪ *Monitoring*

- Programmatic Goal: # attending workshop; #WISE award applicants

- Environmental Goal: CRP Analysis, Change in AU impairment status

6.0 Illicit Discharge

- Implementation Activities:

  6.1 Encourage Local Jurisdictions to Detect and Eliminate Illicit Discharges

  6.2 Improve Regulation and Enforcement of Illicit Discharges

  6.3 Monitor and Control Waste Hauler Activities

  6.4 Reduce Boater Wastes (New)

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Example 6.4 Boater Wastes

- **_Metric_**
  - # Outreach events
  - # Pumpout stations

- **_Milestone_**
  - Annual report

- **_Monitoring_**
  - Programmatic Goal: # program/actions undertaken, # pumpout facilities, # boaters/marinas
  - Environmental Goal: CRP Analysis, Change in AU impairment status

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7.0 Agriculture, Animal and Silviculture Sources

- Implementation Activities:

  7.1 Promote Increased Participation in Existing Programs for Erosion Control, Nutrient Reduction, and Livestock Management

  7.2 Promote the Management of Feral Hog Populations

Land Cover
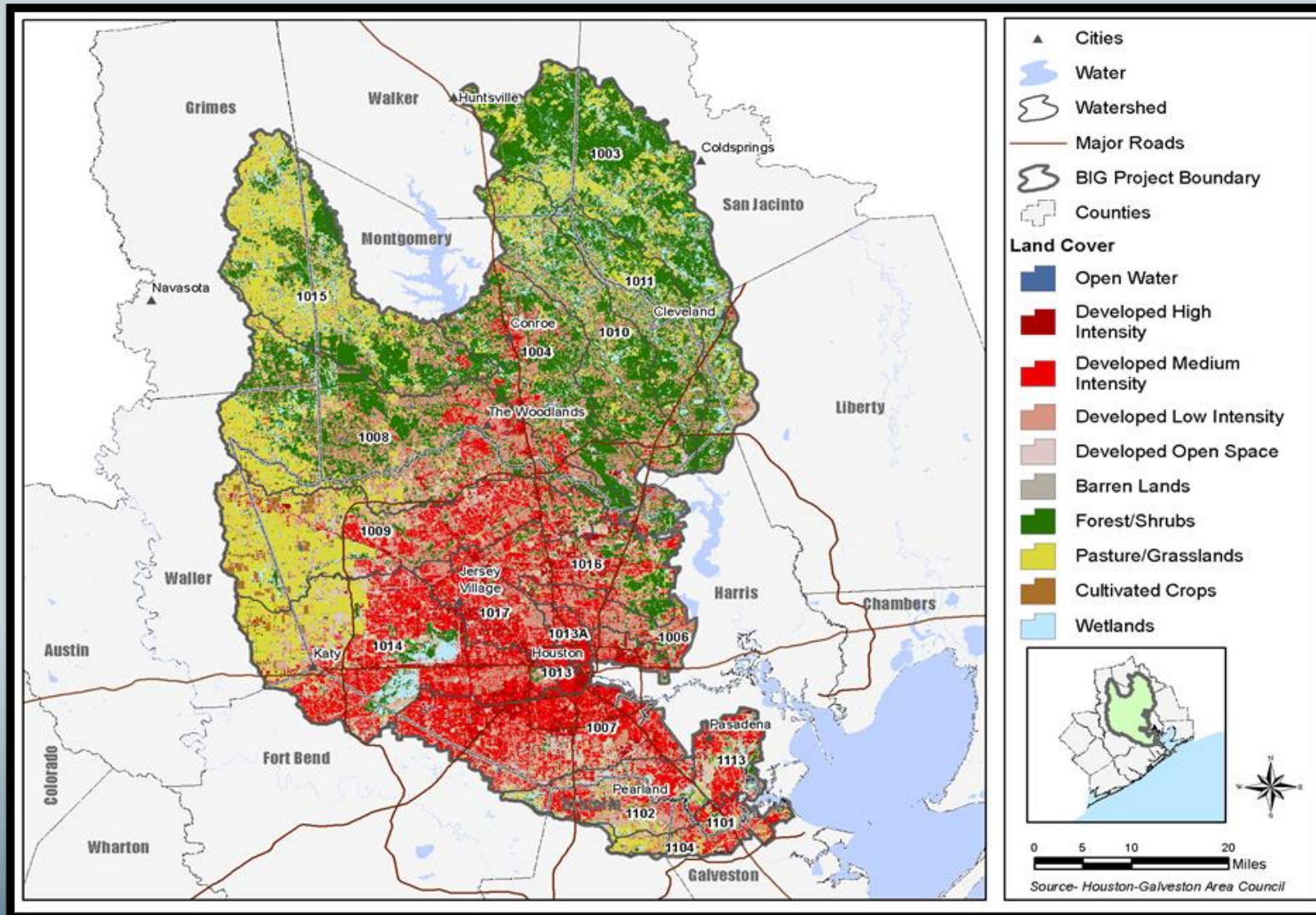
Feral Hogs by Watershed

Watershed	High Quality	Low Quality	Total
Clear Creek	32,007.07	47,170.61	1,476
Armand Bayou	9,232.50	14,327.57	436
Sims Bayou	5,667.51	29,574.07	556
Brays Bayou	1,675.75	23,677.49	372
Buffalo Bayou	1,754.92	20,993.41	337
Barker Reservoir	34,964.47	26,594.64	1,266
Hunting Bayou	1,775.82	7,019.89	143
White Oak Bayou	1,788.50	27,859.85	433
Addicks Reservoir	32,506.34	31,385.25	1,269
Greens Bayou	31,090.35	57,914.29	1,602

Example 7.1 Promote Increase Participation in Existing Programs

- **Metric**

  - Program outreach, BMP projects, Area under program (WQMP, CAP, etc.)

- **Milestone**

  - Annual workshop

  - Annual Report

- **Monitoring**

  - Programmatic Goal: Number of outreach/individuals contacted via workshops, events, or one-on-one, Implemented BMPs or area under a program

  - Environmental Goal: CRP Analysis, Change in AU impairment status

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8.0 Residential

- Implementation Activity:
  - 8.1 Expand Homeowner Education Efforts Throughout the BIG Project Area

Example 8.1 Expand Homeowner Education

- ## *Metric*

  - Track educational programs

  - Increase funding

- ## *Milestone*

  - Annual Report

- ## *Monitoring*

  - Programmatic Goal: Number of targeted outreach opportunities.

  - Environmental Goal: CRP Analysis, Change in AU impairment status
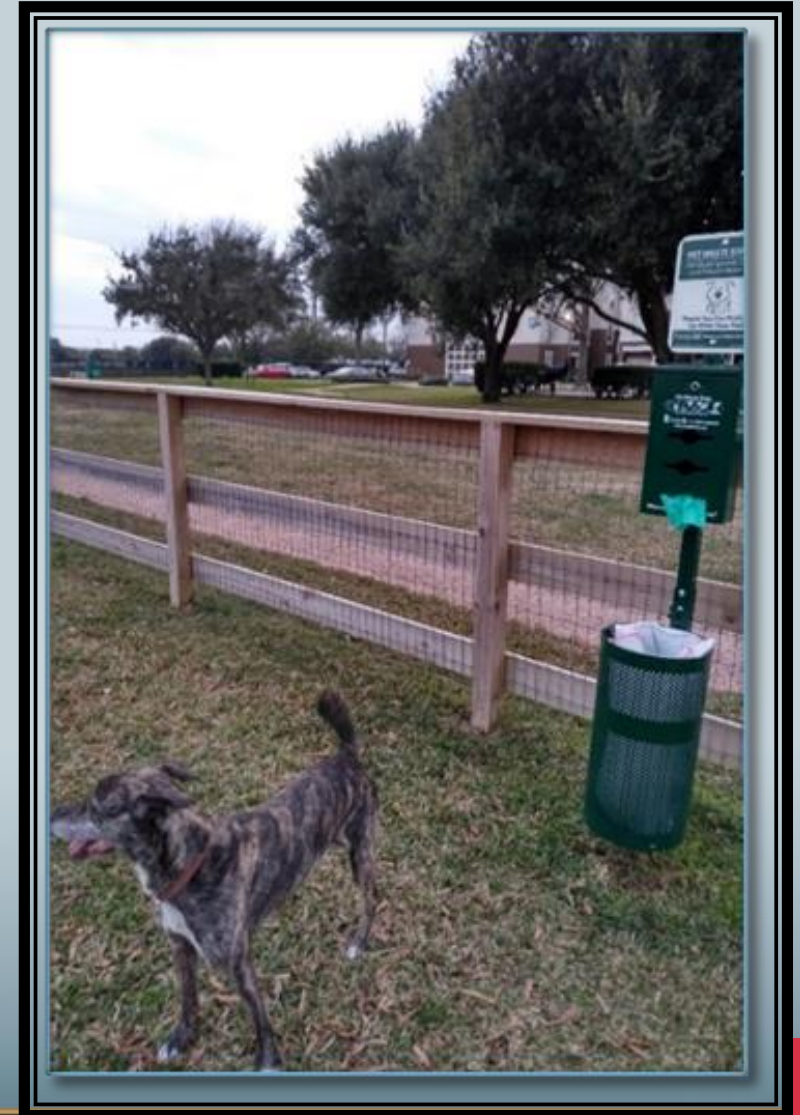
9.0 Monitoring and I-Plan Revision

- Implementation Activities:

  9.1 Continue to Utilize Ambient Water Quality Monitoring and Data Analysis

  9.2 Conduct and Coordinate Non-Ambient Water Quality Monitoring

  9.3 Create and Maintain a Regional Implementation Activity Database

  9.4 Assess Monitoring Results and Modify I-Plan

Clean Rivers Monitoring Stations
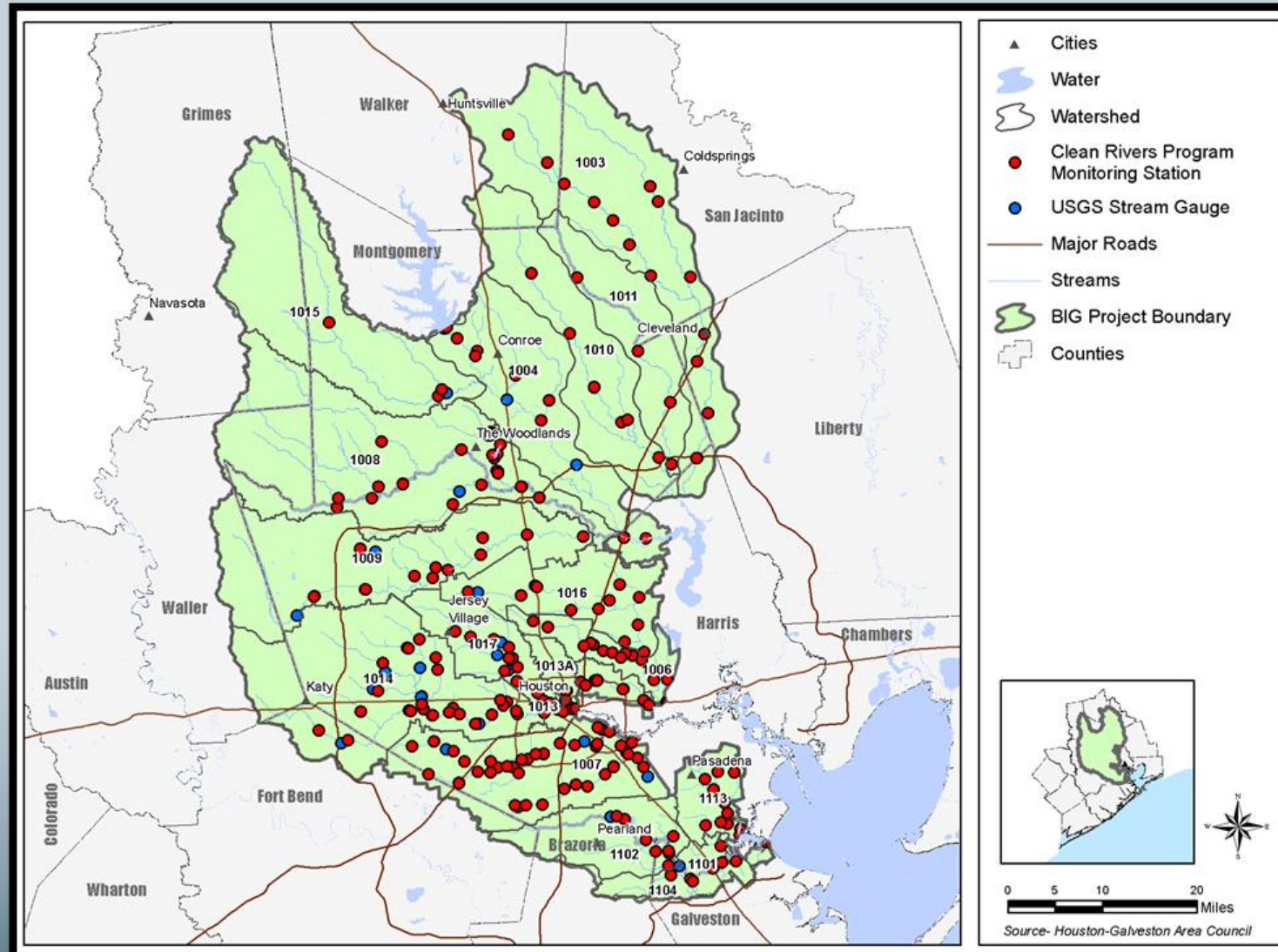
Example 9.4 Assess Monitoring Results and Modify I-Plan

- **Metric**
  - Review of programmatic and environmental data; Review I-Plan for update

- **Milestone**
  - Annual Report

- **Monitoring**
  - Programmatic Goal: Annual report published
  - Environmental Goal: CRP Analysis, Change in AU impairment status

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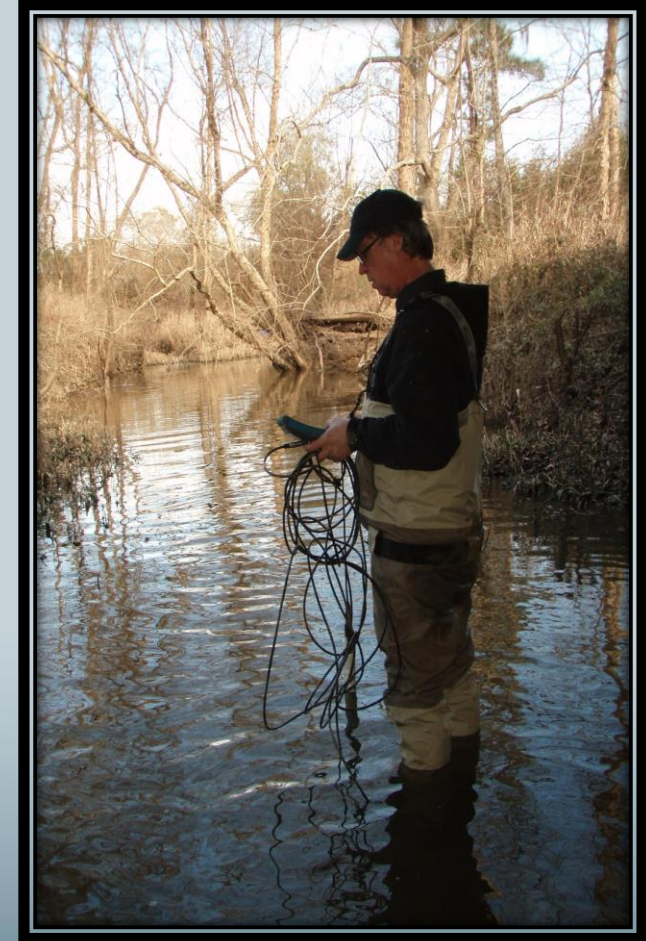
10.0 Research

- Implementation Activities:

  10.1 Evaluate the Effectiveness of Stormwater Implementation Activities

  10.2 Further Evaluate Bacteria Persistence and Regrowth

  10.3 Determine Appropriate Indicators

  10.4 Additional Research Topics

Example 10.1 Effectiveness of Stormwater Activities

- ▪ *Metric*

  - Completed effectiveness studies

- ▪ *Milestone*

  - Annual report

- ▪ *Monitoring*

  - Programmatic Goal: Reported studies

  - Environmental Goal: CRP Analysis, Change in AU impairment status

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11.0 Geographic Priority Framework

- **Implementation Activity:**
  - 11.1 Consider recommended criteria when selecting geographic location for projects

Example 11.1 Consider Recommended Criteria

- **Metric**

  - Geographic priority criteria in use

- **Milestone**

  - Annual Report

- **Monitoring**

  - Programmatic Goal: Track use within Annual Report

  - Environmental Goal: CRP Analysis, Change in AU impairment status

1007A_01 - Canal C-147 Bacteria Sample Counts

0 - 126
127 - 300
301 - 800
801 - 2000
2001 - 4000
TNTC*

0   0.1   0.2 Miles
*To Numerous to Count
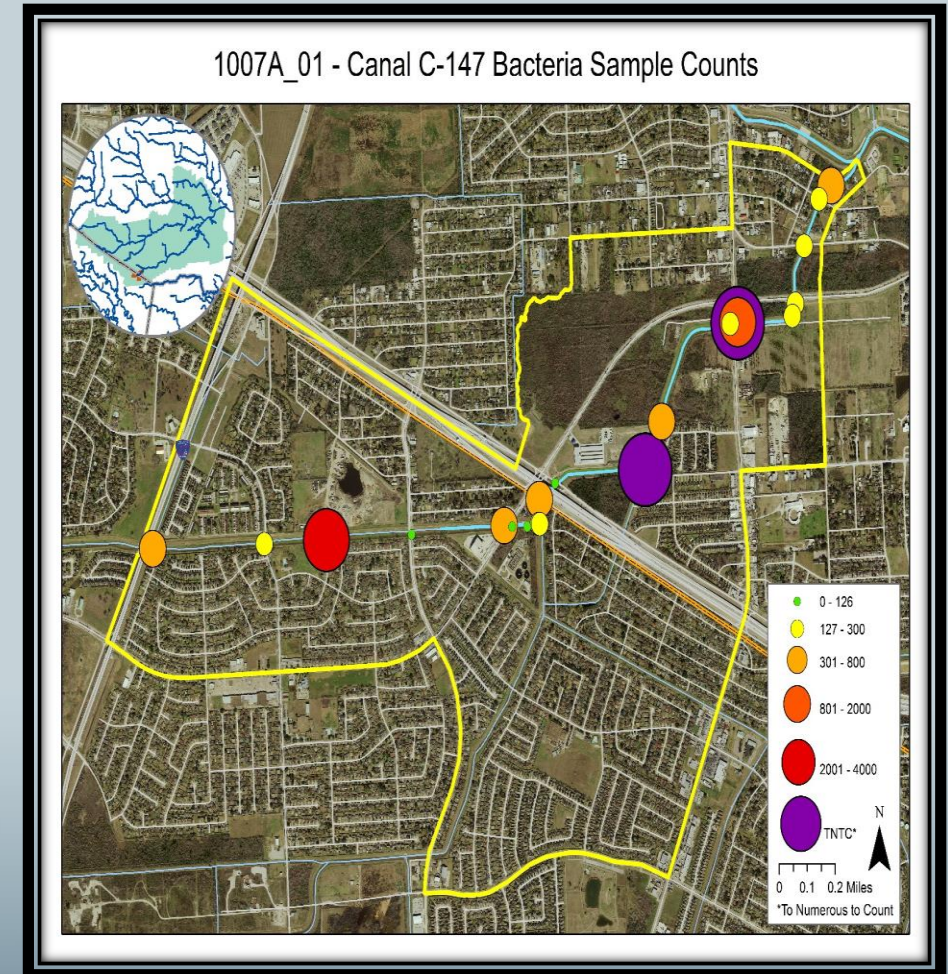
I-Plan Update Timeline

July
- Coordination and Policy
- Review and Comment

August
- Coordination and Policy

October
- BIG Vote

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2021 Annual Report

- Calendar Year 2020
- Four Success Stories
- Three BIG Ideas
- Implementation Progress

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BACTERIA IMPLEMENTATION GROUP

2021 ANNUAL REPORT
JANUARY 1, 2020–DECEMBER 31, 2020

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Bacteria Trends

Moving Seven-Year Geometric Mean- BIG Project Area
Original BIG Area, Expanded BIG Area
Expressed as Multiple of Primary Contact Recreation Standard

Reference Line represents the Primary Contact Recreation Standard
Stations outside BIG area include basins 9,10,11,24 Only

Bacteria Trends

Moving Seven-Year Geometric Mean- BIG Project Area
All Areas, Original BIG Area, Armand Bayou, Jarbo Bayou, and East Fork / West Fork SJR Additions
Expressed as Multiple of Primary Contact Recreation Standard

Reference Line represents the Primary Contact Recreation Standard
Stations outside BIG area include basins 9,10,11,24 Only

WWTF in the BIG Project Area

WWTF Permittees	Number
Permittees in TCEQ Outfall Layer	690
Permittees in EPA Registry	686
Permittees Submitting DMR Data (any type)	548
Permittees Submitting DMR Bacteria Data	528

WWTF Type	Number of Permittees
Domestic	510
Industrial	18

Compliance (DMR)

Variable	Geometric Mean	Daily Maximum or Grab Sample
Total Results Reported	3828	3914
Total Exceeding Limit	14	103
Percent Exceedance	0.37	2.63
Compliance	99.63	97.37

Sanitary Sewer Overflows

Reported Cause	Number of Events	Estimated Volume (1000 Gallons)
Blockage Due To Roots/Rags/Debris	30	184.3
Blockage in Collection System Due To Fats/Grease	55	28.3
Blockage in Collection System-Other Cause	59	56.5
Collection System Structural Failure	8	91.9
Human Error	2	0.8
Lift Station Failure	43	171.9
Power Failure	2	16.0
Rain / Inflow / Infiltration	78	390.0
Unknown Cause	790	502.6
WWTP Operation or Equipment Malfunction	36	87.9

Cause of Reported SSOs by Year in BIG Project Area, 2020
Number of Events -Domestic WWTF Only

Infrastructure/WWTP 89
Blockage (All Types) 144
Rain/INI/Hurricane 78
Other 792

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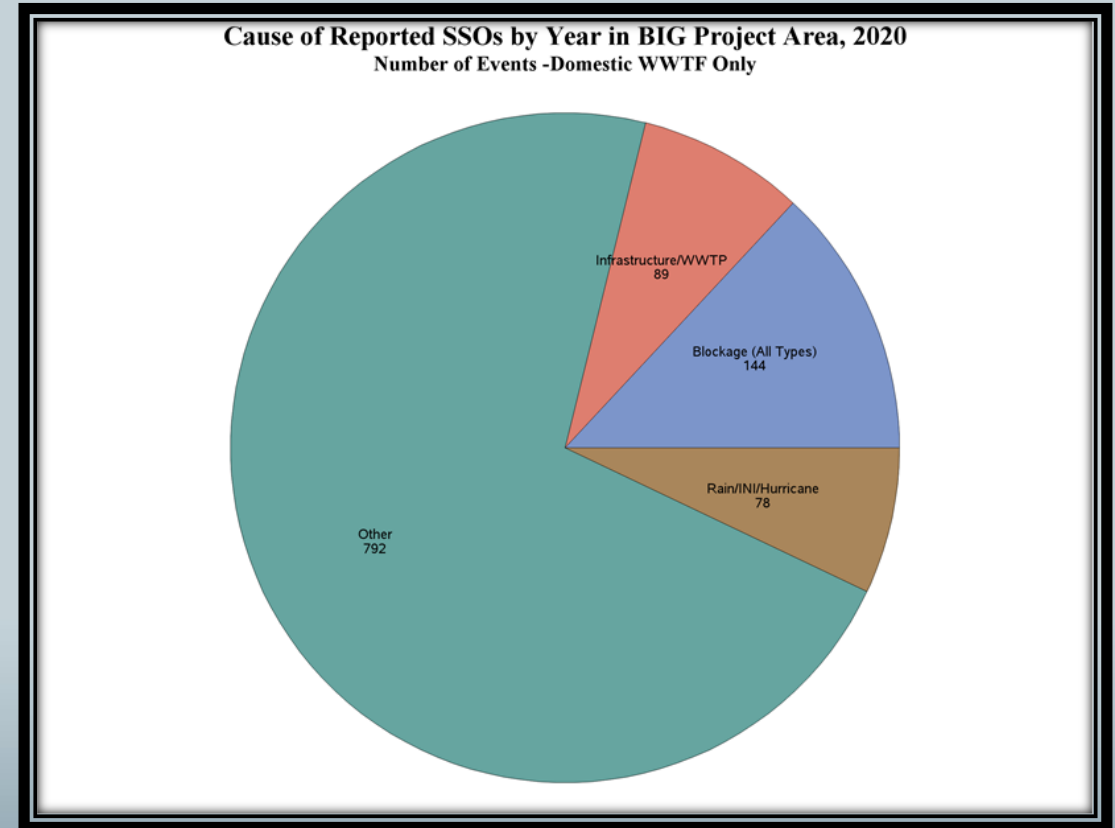
Annual Report Timeline

May • BIG Spring Meeting

• Review and Comment

July • Coordination and Policy

July • BIG Vote

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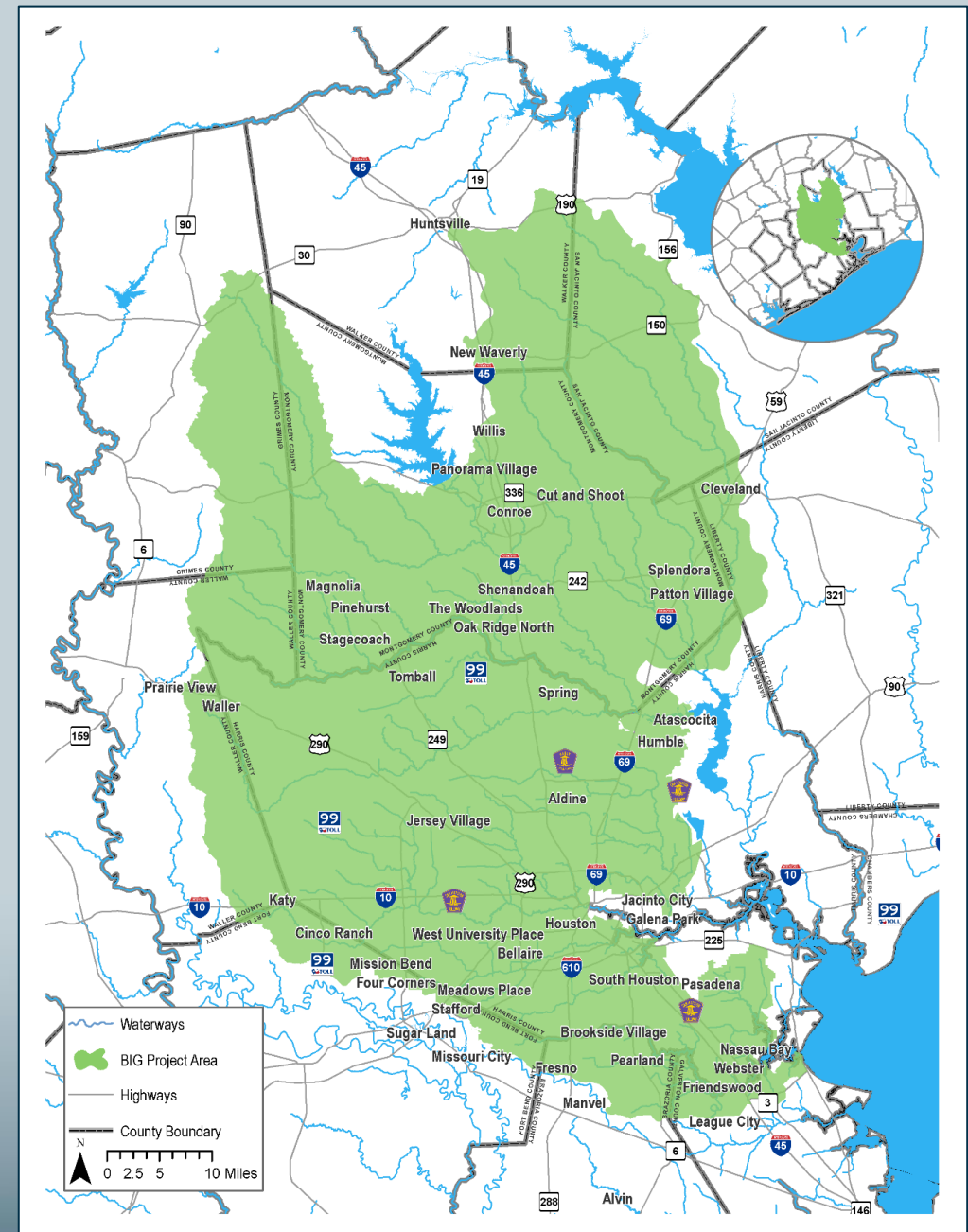
2022 Annual Report

- Calendar Year 2021
- Analyzing DMR, SSO, OSSF, etc.
- Collecting Partner Data
  - Imp. Actions
  - Success Stories
- Format

Annual Report Timeline

- **June/July** — • Collecting Implementation
- **August** — • Coordination and Policy
- **October** — • Coordination and Policy
- **October** — • BIG Vote

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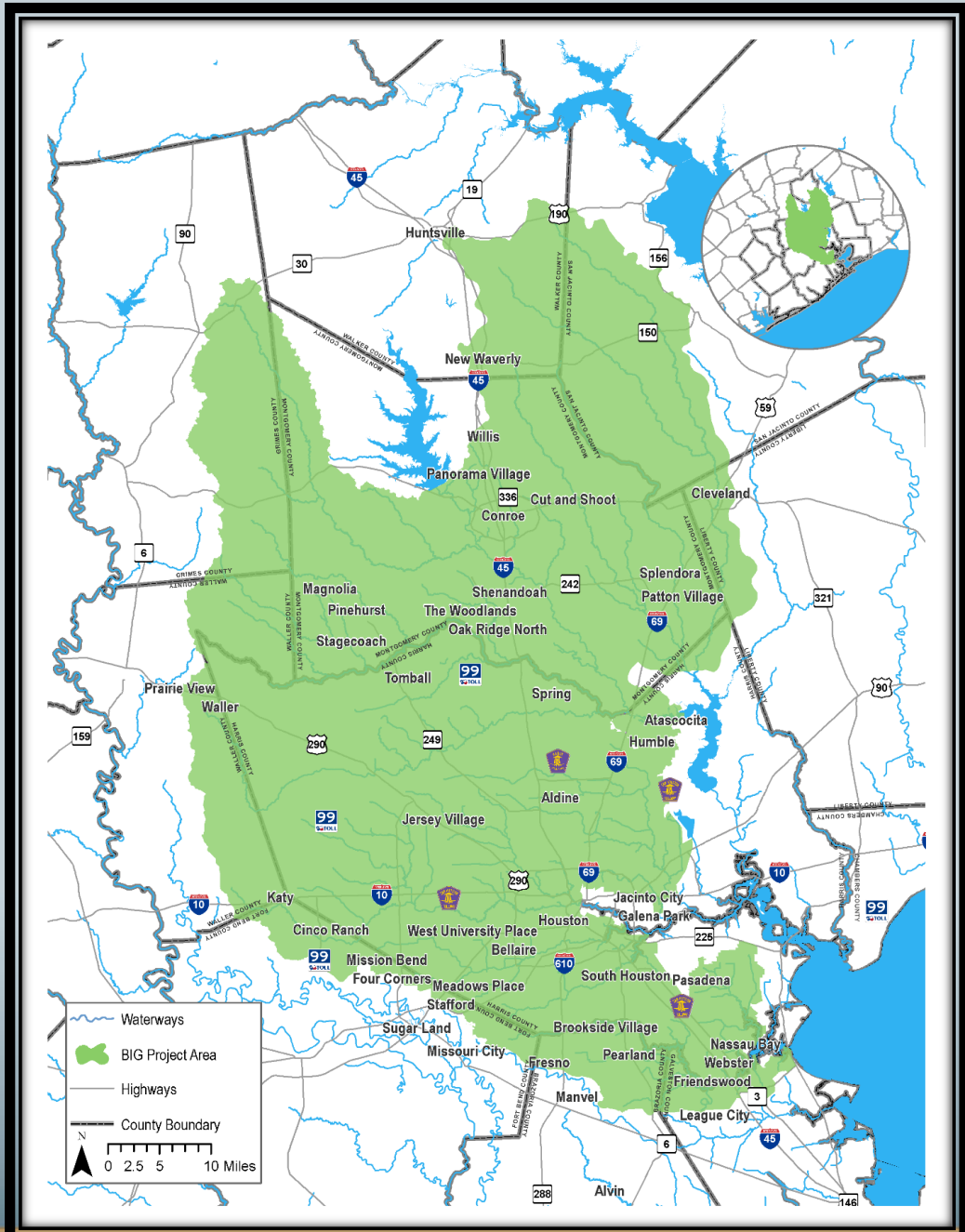HGAC
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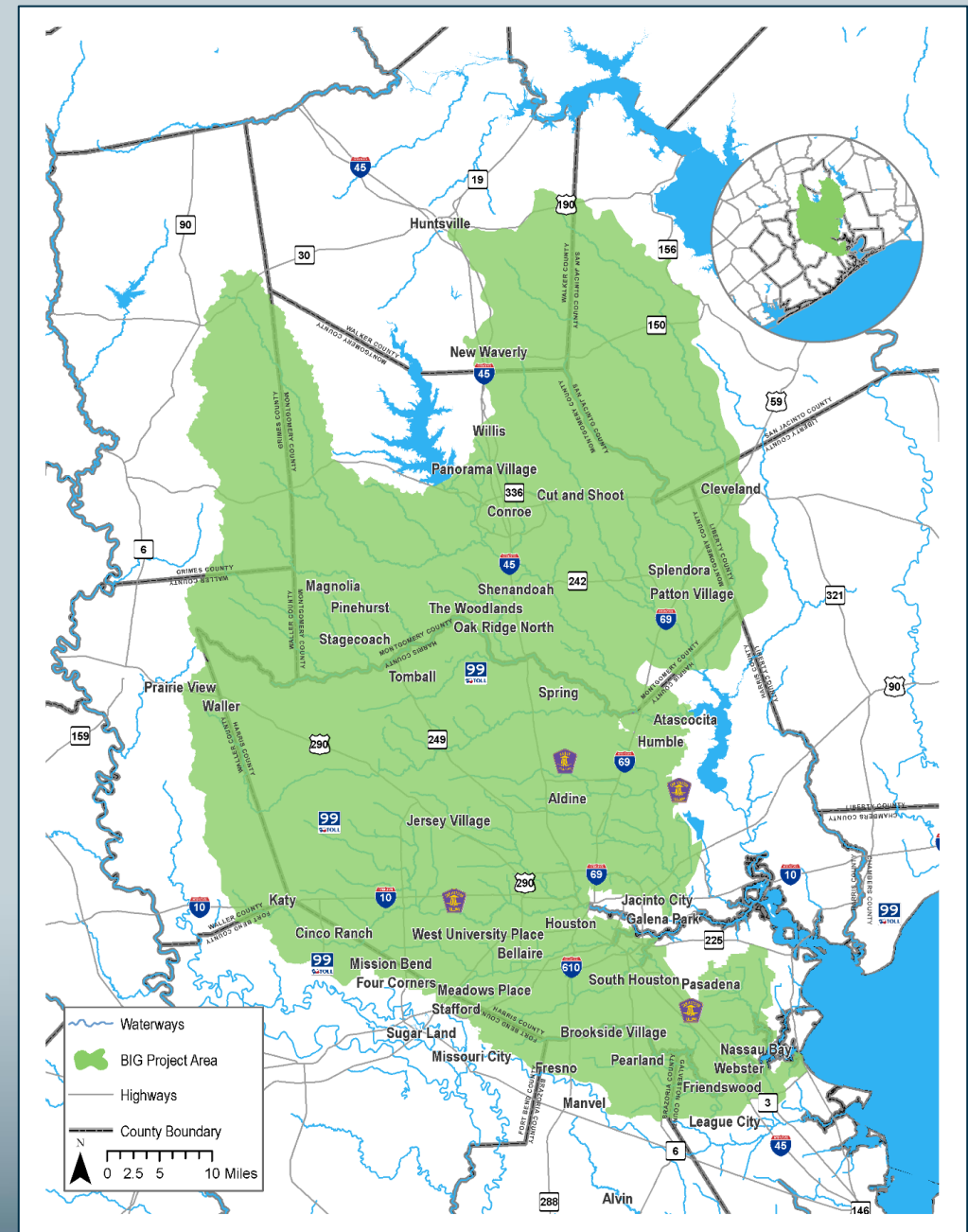
TMDL Updates

Mr. Jimmy Millican, Tarleton State University -

"Status of Addition to Indicator Bacteria TMDLs in the Lake Houston Watershed."

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Implementation Project Presentations

Demographics within the BIG Project Area – Mr. Pramod Sambidi, H-GAC

Partner Highlight

Texas Forest Service Programs – Ms. Cassidy Ince

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Upcoming Meetings and Events

- June 9, 2022 – Big Creek TMDL meeting, Rosenberg, TX
- June 9, 2022 – Caney Creek TMDL meeting, Sargent, TX
- June 16, 2022 – Clean Waters Initiative on Outreach
- June 18, 2022 – Texas Stream Team Training, Pearland, TX
- July 11, 2022 – Parks and Natural Areas
- July 26, 2022 – Bringing Back Main Street
- October 25, 2022 - BIG Fall Meeting

ADJOURN

- **Steven Johnston**
- Steven.johnston@h-gac.com
- 281-681-2579