



community*viz*[®]

A Tool for Collaborative Decision Making





communityviz[®]

Promoting informed, collaborative decision making since 2001.



ORTON FAMILY
FOUNDATION

POWERED BY
esri

2011 Esri Business Partner of the Year – Desktop Extensions



Analyze



ArcGIS[®]-based **analysis** of
growth and development

Environmental
Economic
Social

Visualize

Interactive 3D models and other
visuals of places as they are,
and as they could be



Communicate



Wide variety of tools for public
participation, expression and
communication



communityviz

ArcGIS Extension

Analysis Wizards

Multiple Scenarios

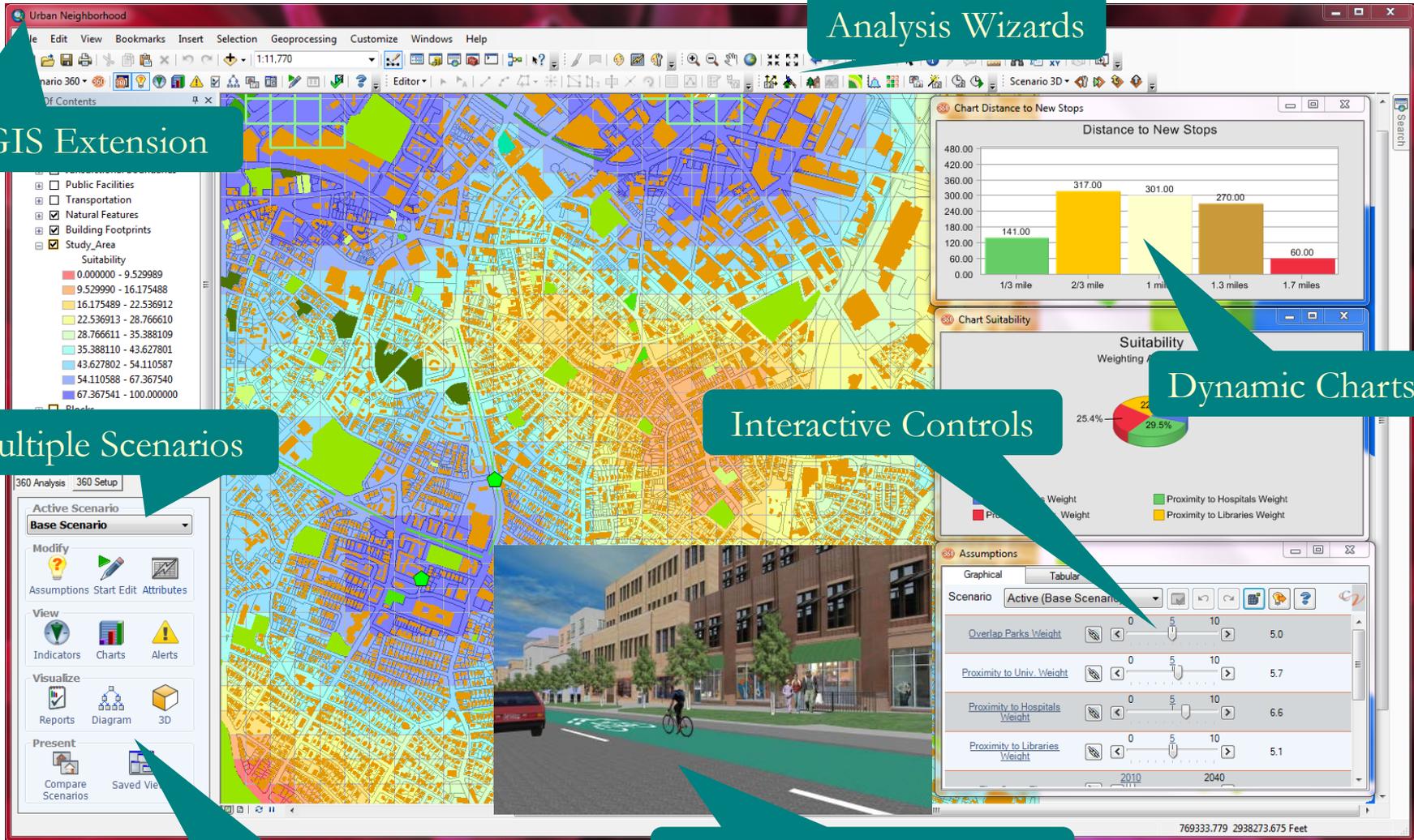
Interactive Controls

Dynamic Charts

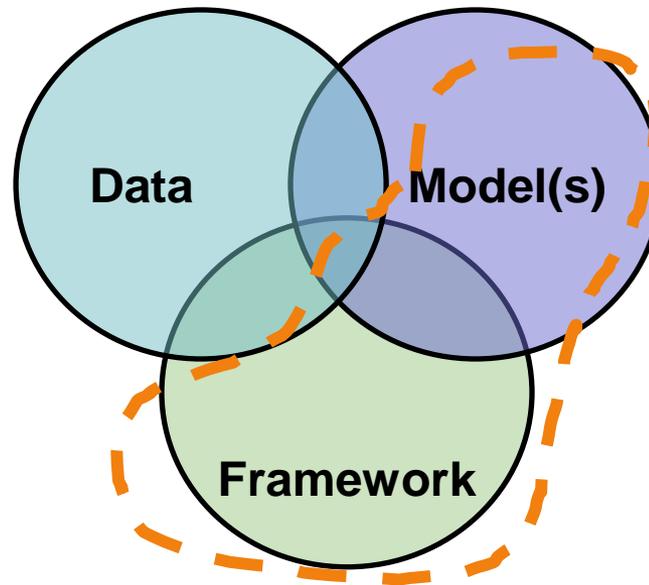
Intuitive Interface

Optional Fly-through 3D

communityviz®



Tools



- **Tool Provides Data:** Typically from a national/aggregated source. Can require time and resources to localize and calibrate.
- **Tool Provides Model:** Based on a given schema, the user sets up and provides a given dataset to run the model.
- **Tool Provides Framework:** Analytical capacity of tool can be customized to a given task.

Land Capacity Analysis

(How many people can fit in the study area? How much development is possible?)

Land Prioritization/Vulnerability

(What is the best location for development? Services? What should we preserve/avoid?)

Growth Allocation

(Where might development be in 20 years? How much capacity will be remaining in 30 years?)

Performance Measurement

(What impacts will come with estimated development? What variables can we affect?)

Algorithmic Model Decision Tools

Build-Out

Suitability

Optimizer

TimeScope

Allocator

360 Indicators

Common, Custom Impacts

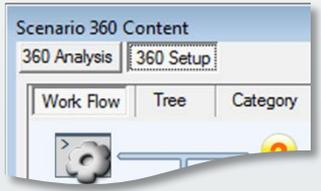
Manual Model Decision Tools

Land Use Designer & Sketch tools

User Determined

Land Use Designer & Sketch tools

Custom Analysis



- Refine tool outputs
- Script your own formulas with easy formula editor tools
- Setup custom user interactive variable controls
- Build on existing data to create new information
- Create new data from scratch (easy setup, user input formulas, easy data trading tools)
- Interact with other ArcGIS processes (model builder, network analyst, spatial analyst)

External Modeling

Travel Demand, Biodiversity, Hazards, Water Quality, Forestry, Fiscal Impacts, Air Quality, etc.

Risk Assessment

**Stakeholder
Engagement**

Scoping/
Inventory

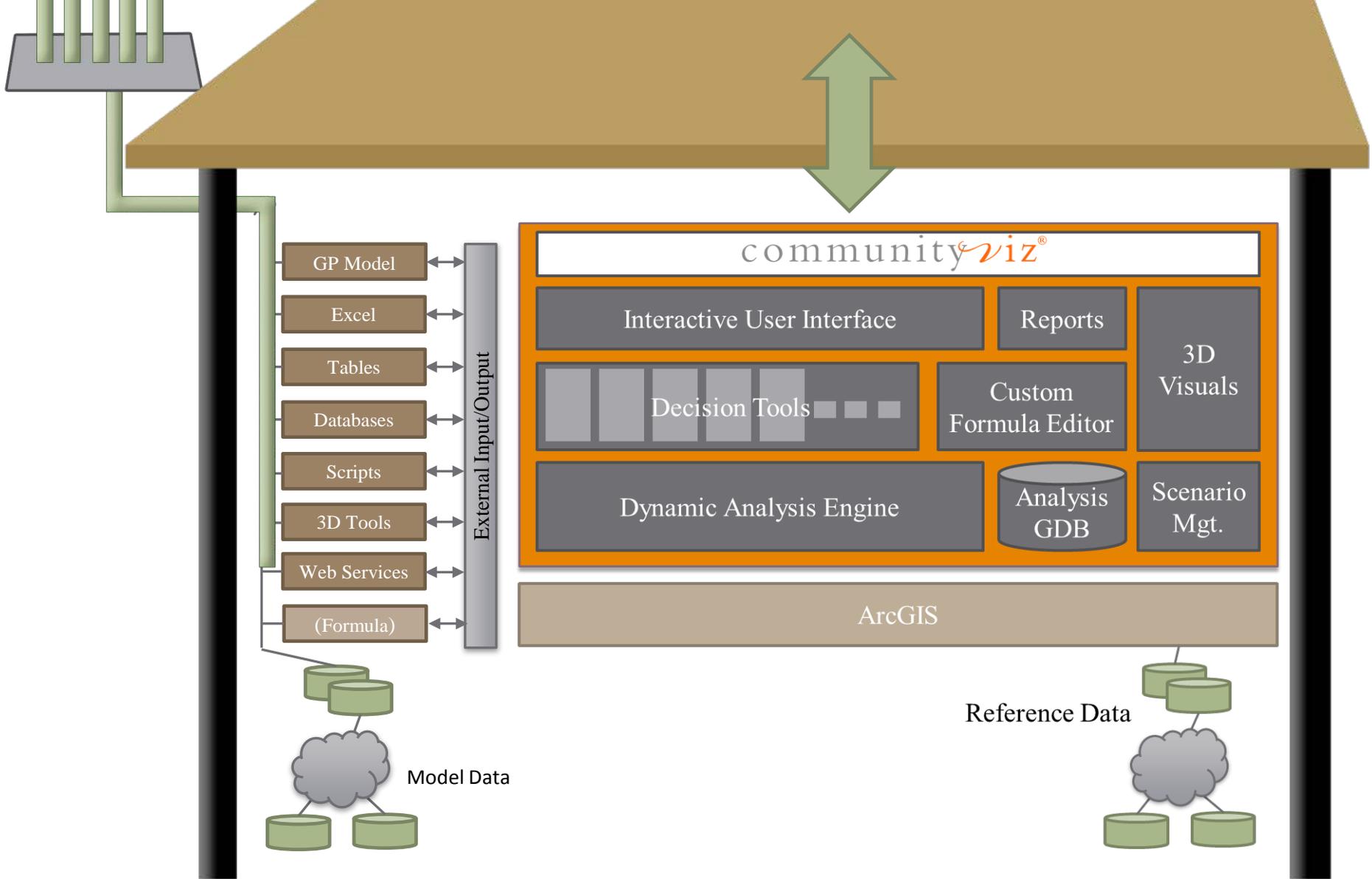
Assessment/
Analysis

Planning

Implementation/
Monitoring







Stakeholder
Engagement

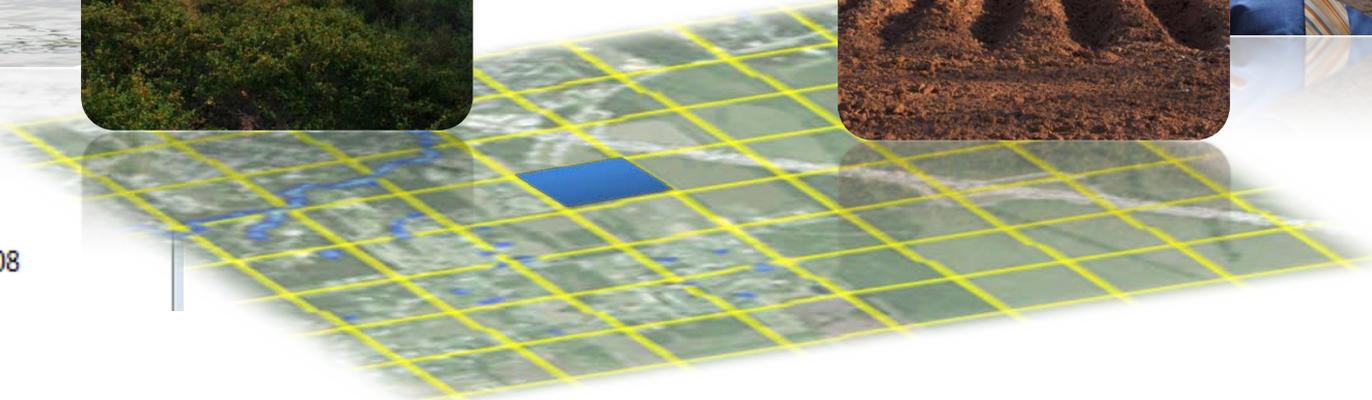
Scoping/ Inventory

Assessment/
Analysis

Planning

Implementation/
Monitoring

- Boundary
- Railroads
- Major Highways
- Minor Roads
- Open Water
- Municipalities
- Existing Development Q
- Census 2010 Blocks
- Parks
- Prime Farmland
- Eco-Logical
- Wetlands
- Floodplain
- Hurricane
- Additional
- Levee
- Hurric
- Rainfa
- SLOSH
- Soils
- CHARM
- Existing_Grid_Data
- Elevation NED
- Aerial Harris County NAIP2009
- Aerial Galveston County NAIP2008



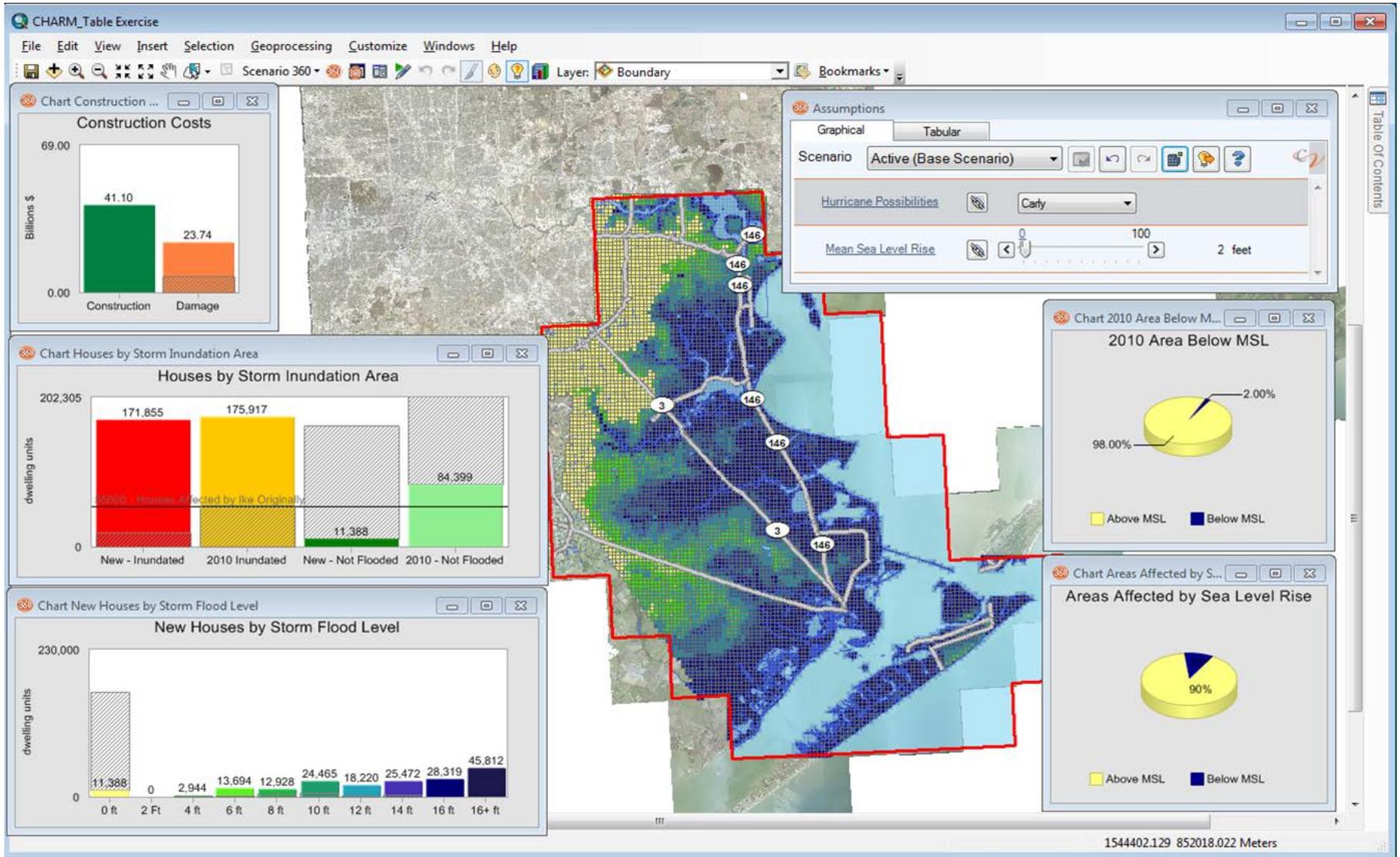
Stakeholder Engagement

Scoping/ Inventory

Assessment/
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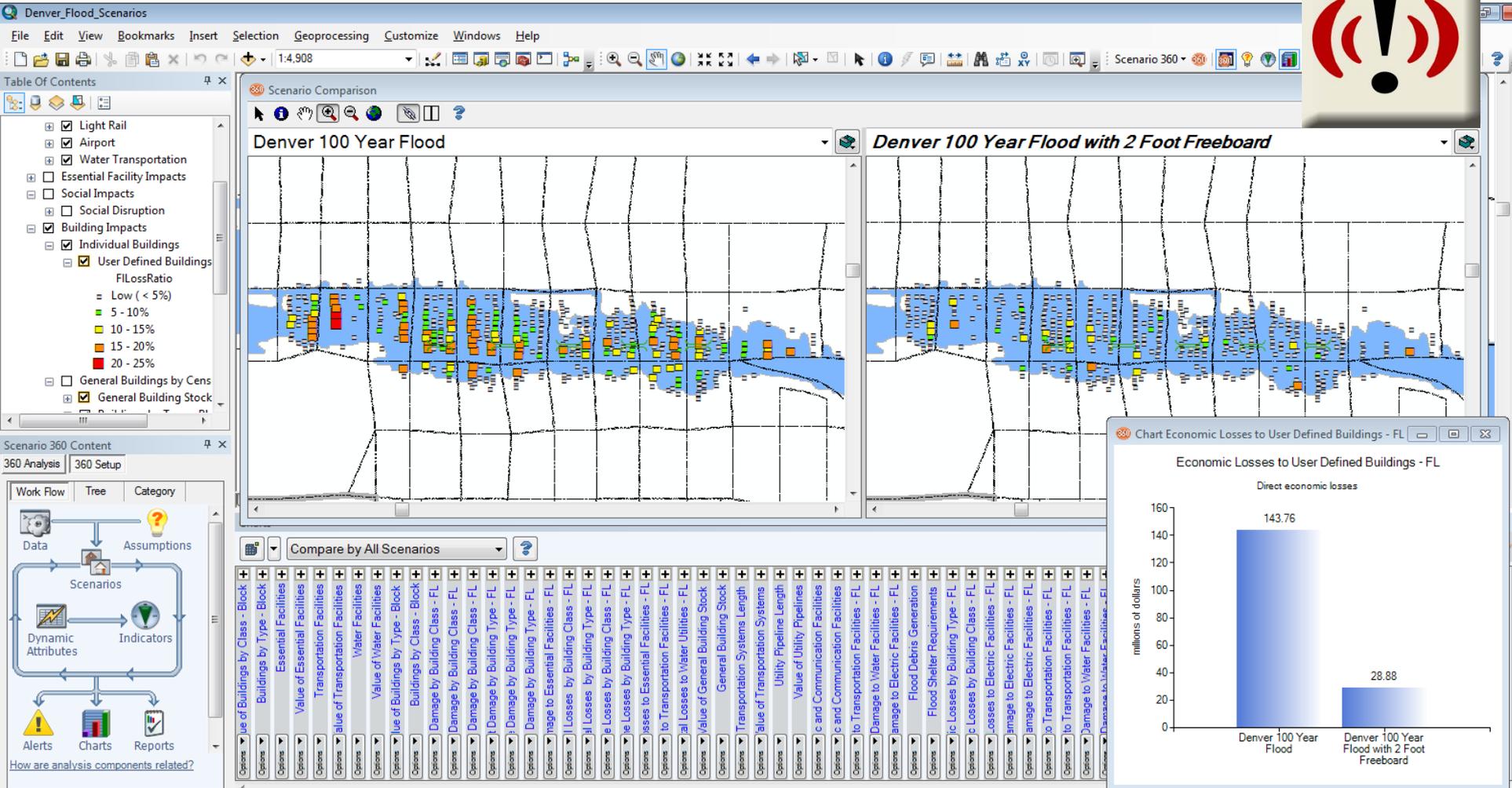
Stakeholder Engagement

Scoping/Inventory

Assessment/
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Stakeholder Engagement

Scoping/ Inventory

Assessment/ Analysis

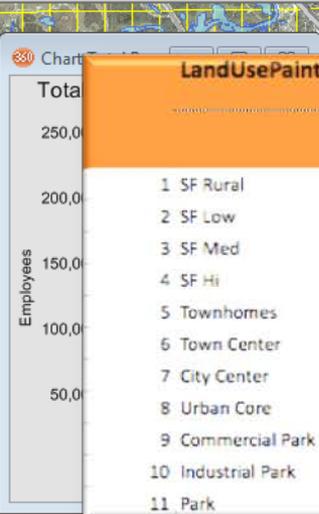
Planning

Implementation/ Monitoring

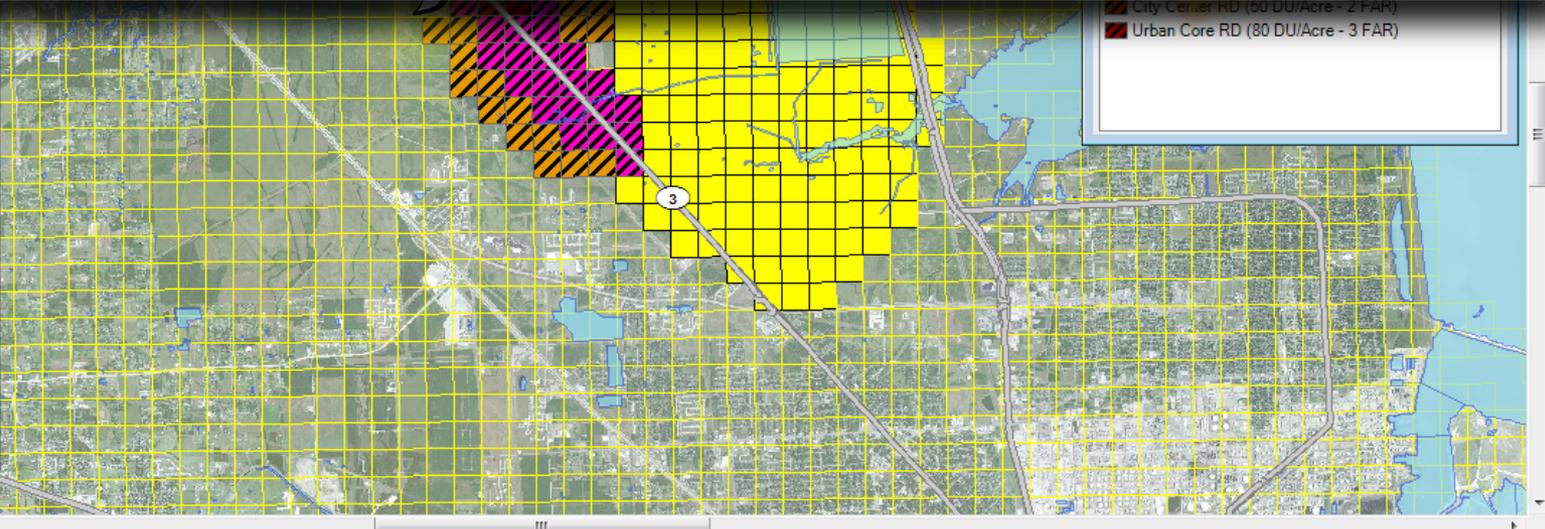
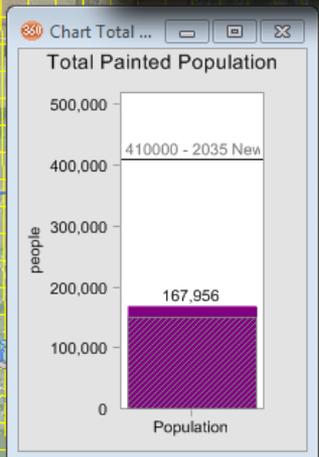
File Edit View Insert Selection Geoprocessing Customize Windows Help

Scenario 360 Layer: Boundary

Bookmarks



LandUsePaint	Density	Septic-WWTP	IS Fraction	TN	TP	TSS	Runoff	Fecal Coliform	High Water Table Bonus	Water Consumption
	du/ac		%	lbs/acre/year	lbs/acre/year	lbs/acre/year	cf/acre/year	FCU/acre/year	CFU/acre/year	GPCPD
1 SF Rural	0.2	septic	0.05	1.46	0.19	176.23	14898	11	182	220
2 SF Low	1	septic	0.15	3.11	0.43	343.18	29011	74	410	220
3 SF Med	4	wwtp	0.3	6.02	0.91	593.6	50181	313	...	220
4 SF Hi	8	wwtp	0.45	9.51	1.5	844.03	71351	445	...	150
5 Townhomes	20	wwtp	0.6	13.54	2.22	1094.45	92521	578	...	75
6 Town Center	30	wwtp	0.7	16.55	2.87	1261.41	106635	666	...	75
7 City Center	50	wwtp	0.8	19.8	3.49	1428.36	120748	754	...	75
8 Urban Core	80	wwtp	0.95	25.14	4.38	1678.78	141918	886	...	75
9 Commercial Park	0	wwtp	0.95	25.14	4.38	1678.78	141918	886	...	3024*
10 Industrial Park	0	wwtp	1	27.04	4.75	1762.26	148975	930	...	3024*
11 Park	0	...	0.05	1.46	0.19	176.23	14898	11



Stakeholder Engagement

Scoping/ Inventory

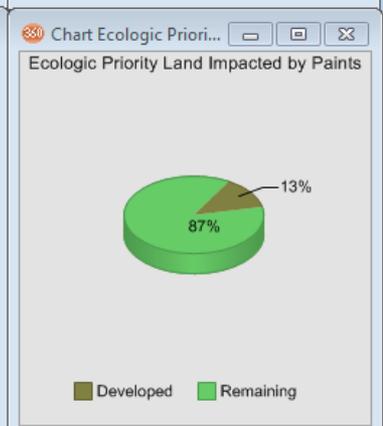
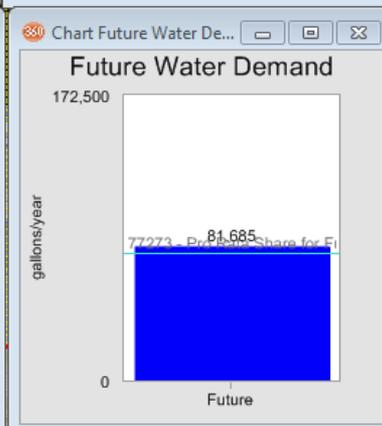
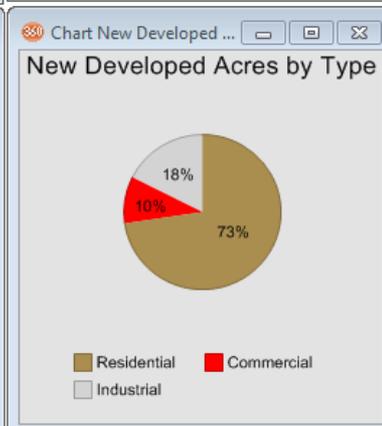
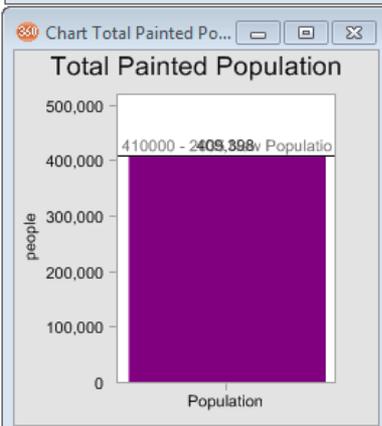
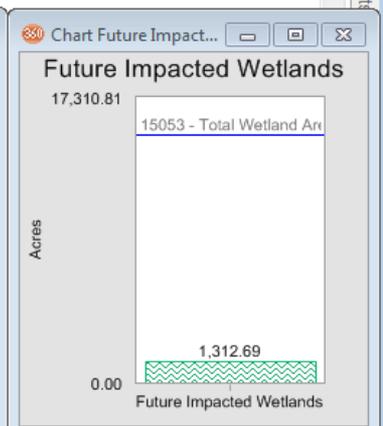
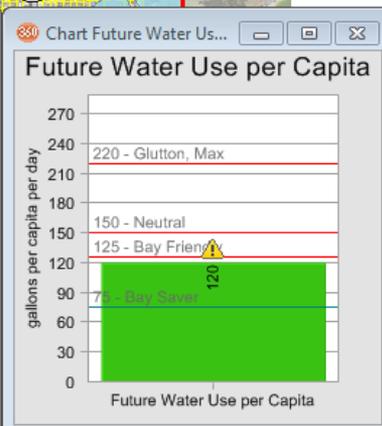
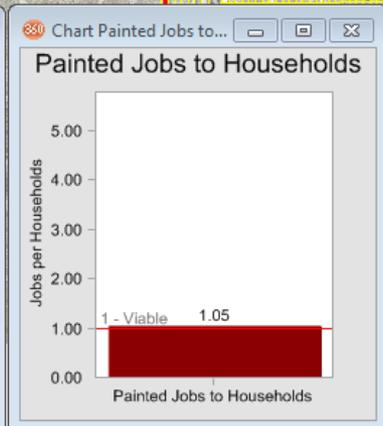
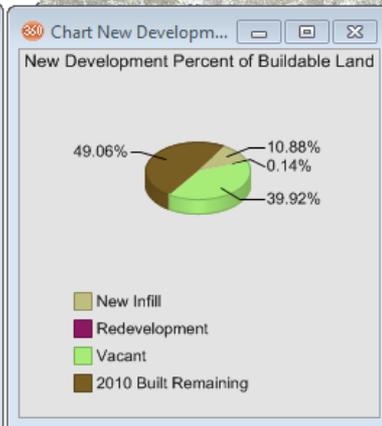
Assessment/ Analysis

Planning

Implementation/ Monitoring



Table Of Contents



CASE STUDY: CHARM



C.H.A.R.M.

- Community Health And Resources Model
- Interactive visioning exercise for coastal resiliency running on CommunityViz and ArcGI
- Allows users to test ideas and strategies about growth, development, impacts, benefits, and trade offs





Project Support

\$24,000 NOAA Sea Grant Support

+ \$ 9,000 Watershed Planning Grant

\$33,000 for CHARM Workshop &
GIS Trainings





Project Goals

- Workshop Goals
 - Use tools that are intuitive
 - Push technology to the background
 - Build and test scenario assumptions
 - Relate land use, hazards, and environmental quality
 - Take a long-term view of growth
- Model Goals
 - Measure resiliency of development
 - Assess potential impacts to watershed
 - Identify key social and economic indicators



Project Development Schedule 2011





CHARM Workshop Agenda

- Welcome/Introductions
- Background information (Where are we in process, State of the region)
- Keypads: priorities and issues
- Table Exercises (CHARM):
 - Mapping growth
 - Scenario Exercises
- Presentation on placemaking and resiliency
- Table Summary Results
- Keypads & Additional thoughts

Tools Used

- CommunityViz[®]

communityviz[®]

- Esri ArcGIS Desktop

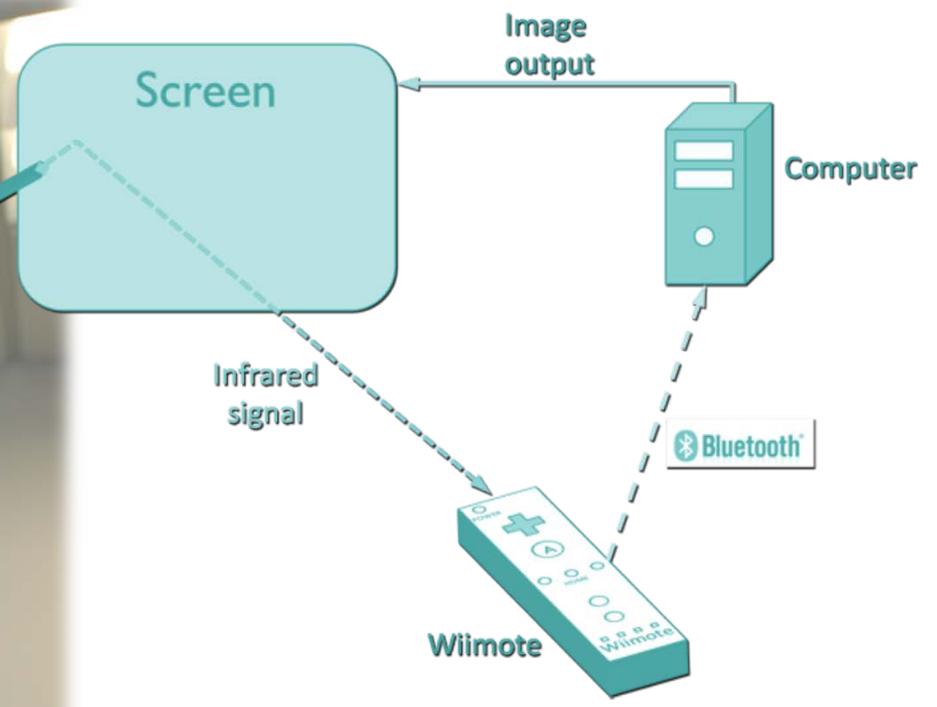


- Smoothboard



- TurningPoint







CHARM
CommunityViz

GIS

**White
Board
Technology**



We-Table







- Urban Core RD (80 DU/Acre - 2.1 FAF)
- City Center RD (50 DU/Acre - 2.1 FAF)
- Town Center RD (30 DU/Acre - 1 FAF)
- Townhomes RD (20 DU/Acre - 0.2 FAF)
- No Change
- Park
- Industrial Park (0.35 FAF)
- Commercial Park (0.15 FAF)
- Urban Core (80 DU/Acre - 3 FAF)
- City Center (50 DU/Acre - 2 FAF)
- Town Centers (30 DU/Acre - 1 FAF)
- Townhomes (20 DU/Acre - 0.2 FAF)
- SF HI (8 DU/Acre - 0.1 FAF)
- SF Med (4 DU/Acre - 0.1 FAF)
- SF Low (1 DU/Acre)
- SF Rural (0.2 DU/Acre)

Layers | Help | Windows | Customize | Geoprocessing | Selection | Insert | Use

Scenario 360 - 090

Length: 2671.043 m Area: 30706.673 sq m

SB

Transparency

Friendwood





Table 1

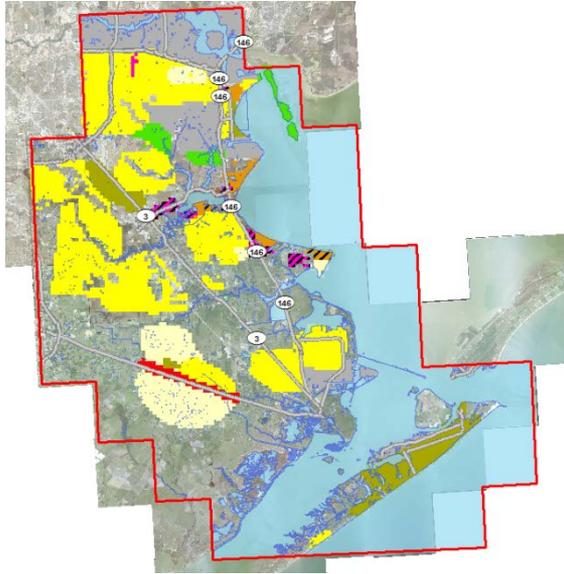


Table 2

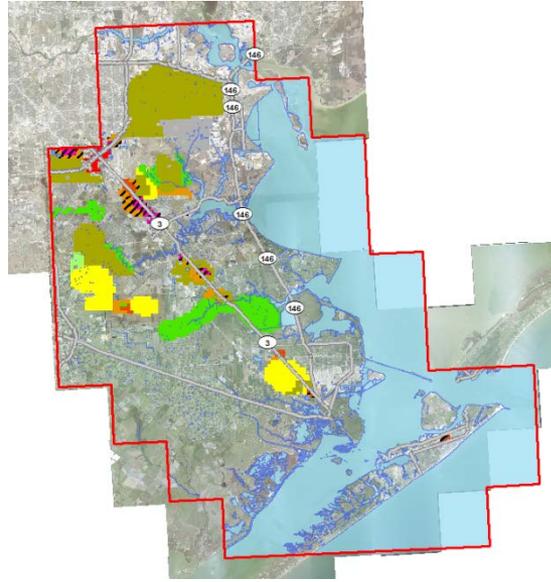


Table 3

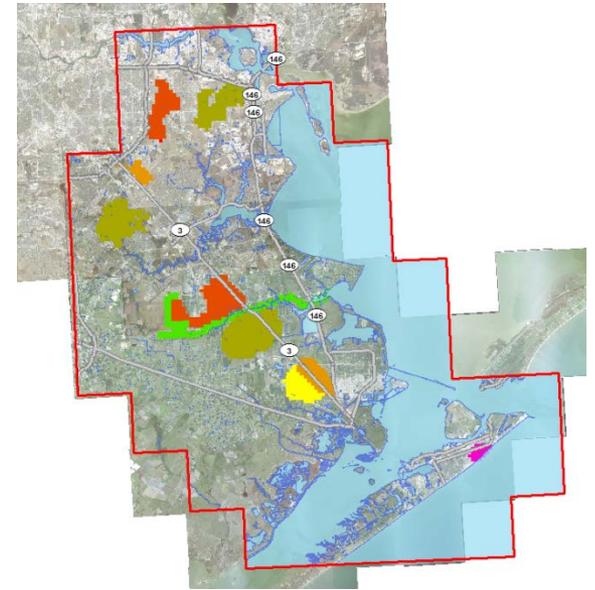


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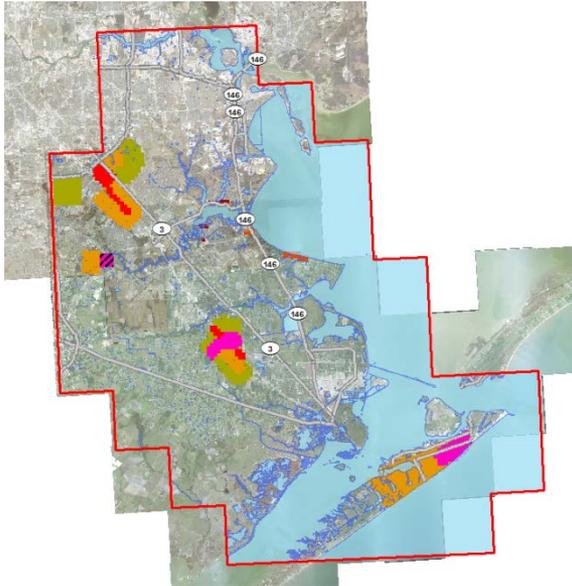
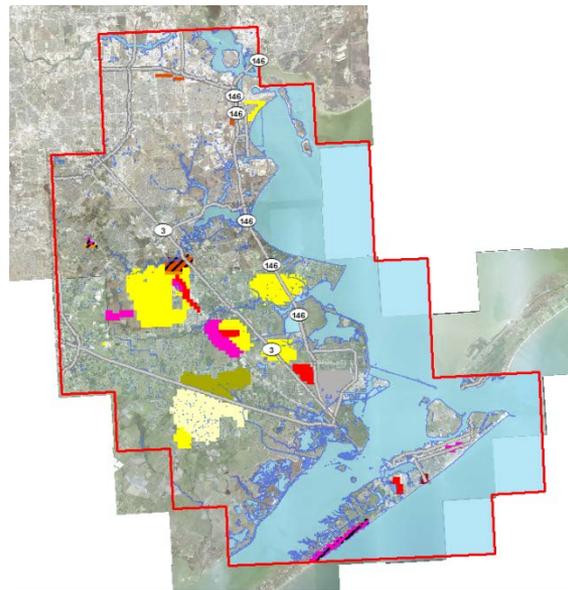


Table 5

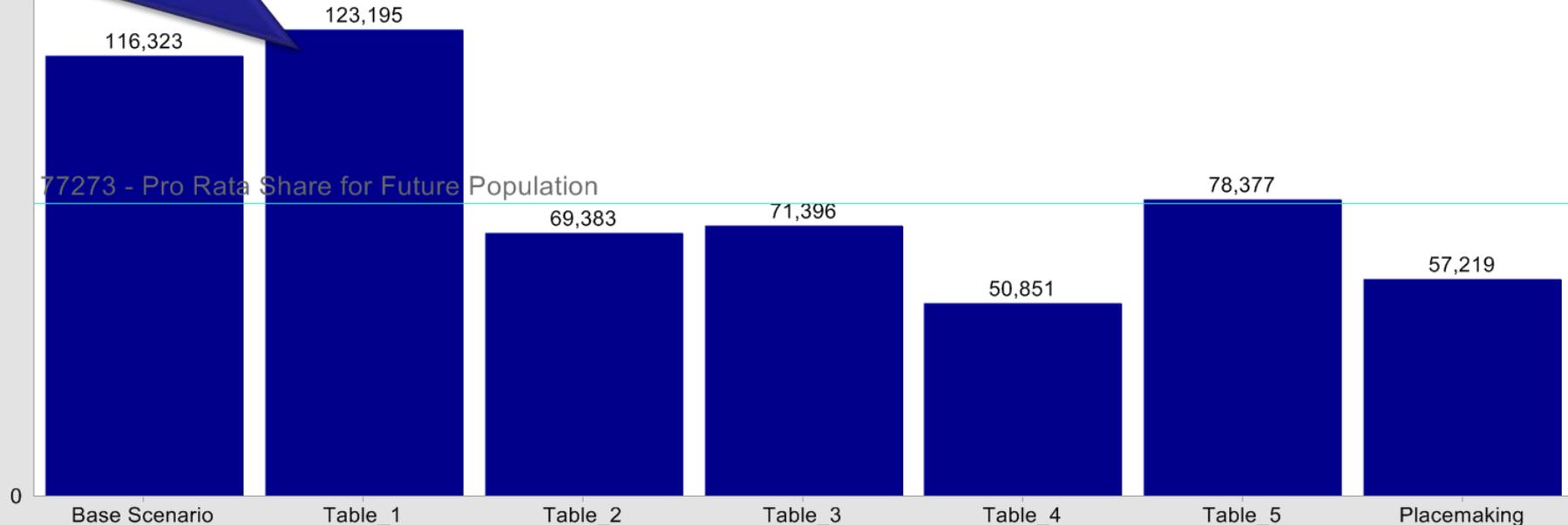


- SF Rural
- SF Low
- SF Med
- SF Hi
- Townhomes
- Townhomes RD
- Town Center
- Town Center RD
- City Center
- City Center RD
- Urban Core
- Urban Core RD
- Commercial Park
- Industrial Park
- Park
- No Change

Comparing Results

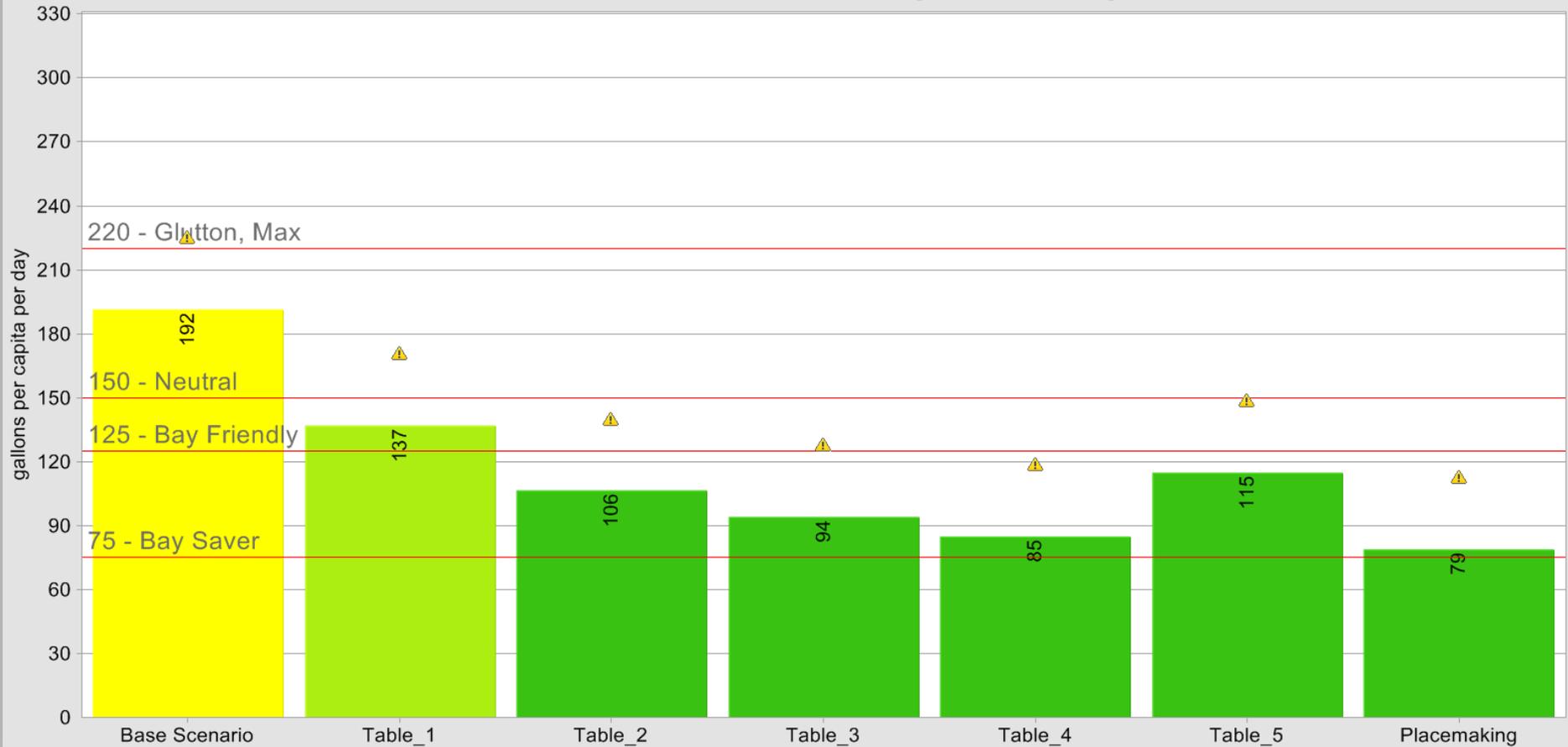
Future Water Demand

Table 1 ignored the population threshold by 2x – this makes it difficult to compare



Comparing Results

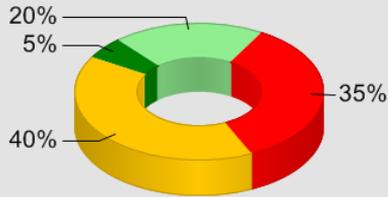
Future Water Use per Capita



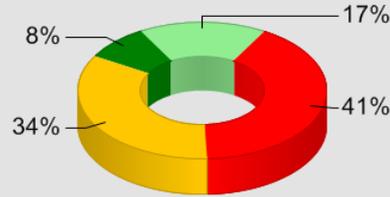
Comparing Results

Houses by Storm Inundation Area

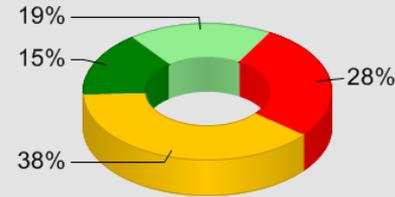
Base Scenario



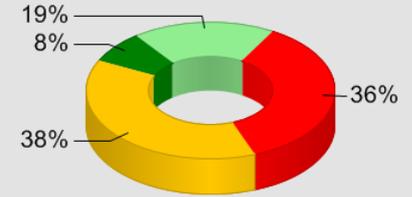
Table_1



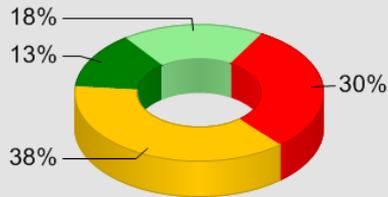
Table_2



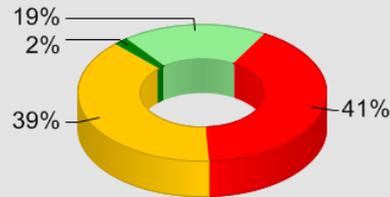
Table_3



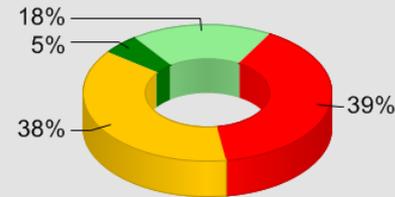
Table_4



Table_5



Placemaking



■ New - Inundated

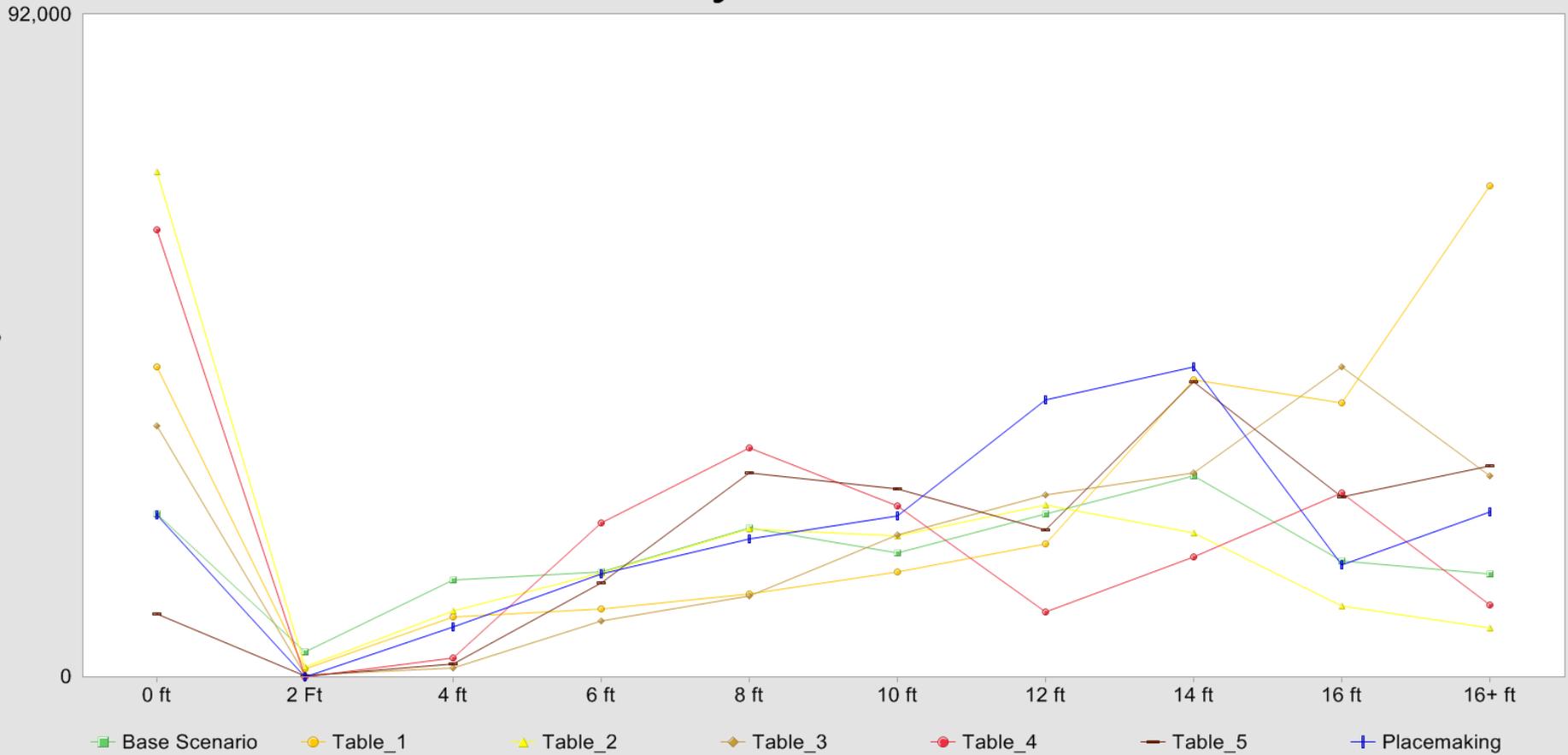
■ 2010 Inundated

■ New - Not Flooded

■ 2010 - Not Flooded

Comparing Results

New Houses by Storm Flood Level

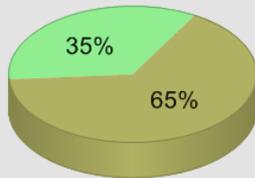


Comparing Results

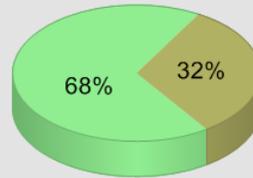


Prime Farmland

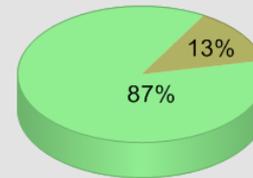
Base Scenario



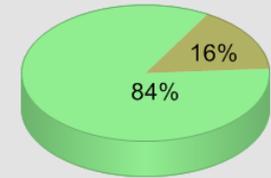
Table_1



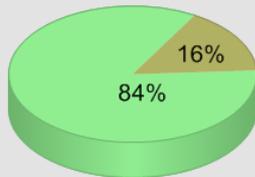
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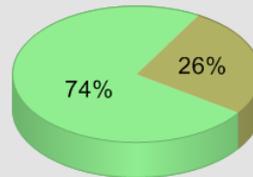
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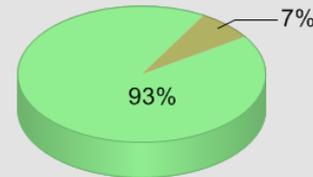
Table_4



Table_5



Placemaking



New Built

Vacant



Lessons Learned

- Worked better than we hoped- premiering three tools was risky
- Factor in time for GIS data preparation
- Table-side facilitators are critical, both for tech and discussion
- Could complement existing planning tools
- People are hungry for this information and type of tool

Next Steps

- New Locations
- Continued Improvement on Models and Indicators
- Easily Transportable Analysis
- Gulf-wide or Better Data Services
- Integrations with other Models



Learn More

<http://placeways.com/communityviz>

1.866.953.1400

<http://www.ebmtools.org/communityviz-charm-model.html>

Urban-nature.org/charm.htm

<https://connect.natureserve.org/toolkit/ebm-tool-network/climate-adaptation-planning-tools>

Questions?

