How do you select good sites for green infrastructure?

Methods for GI BMP site selection

- GIS screening
- Modeling optimization

Who needs to be involved?

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Identifying Green Infrastructure Opportunities – GIS Screening

- Identify Green Infrastructure Opportunities
  - Identification of Target Watersheds
  - Primary Screening
    - Eliminate unfeasible parcels
  - Secondary Screening
    - Prioritize implementation opportunities

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Identifying Green Infrastructure Opportunities – GIS Screening

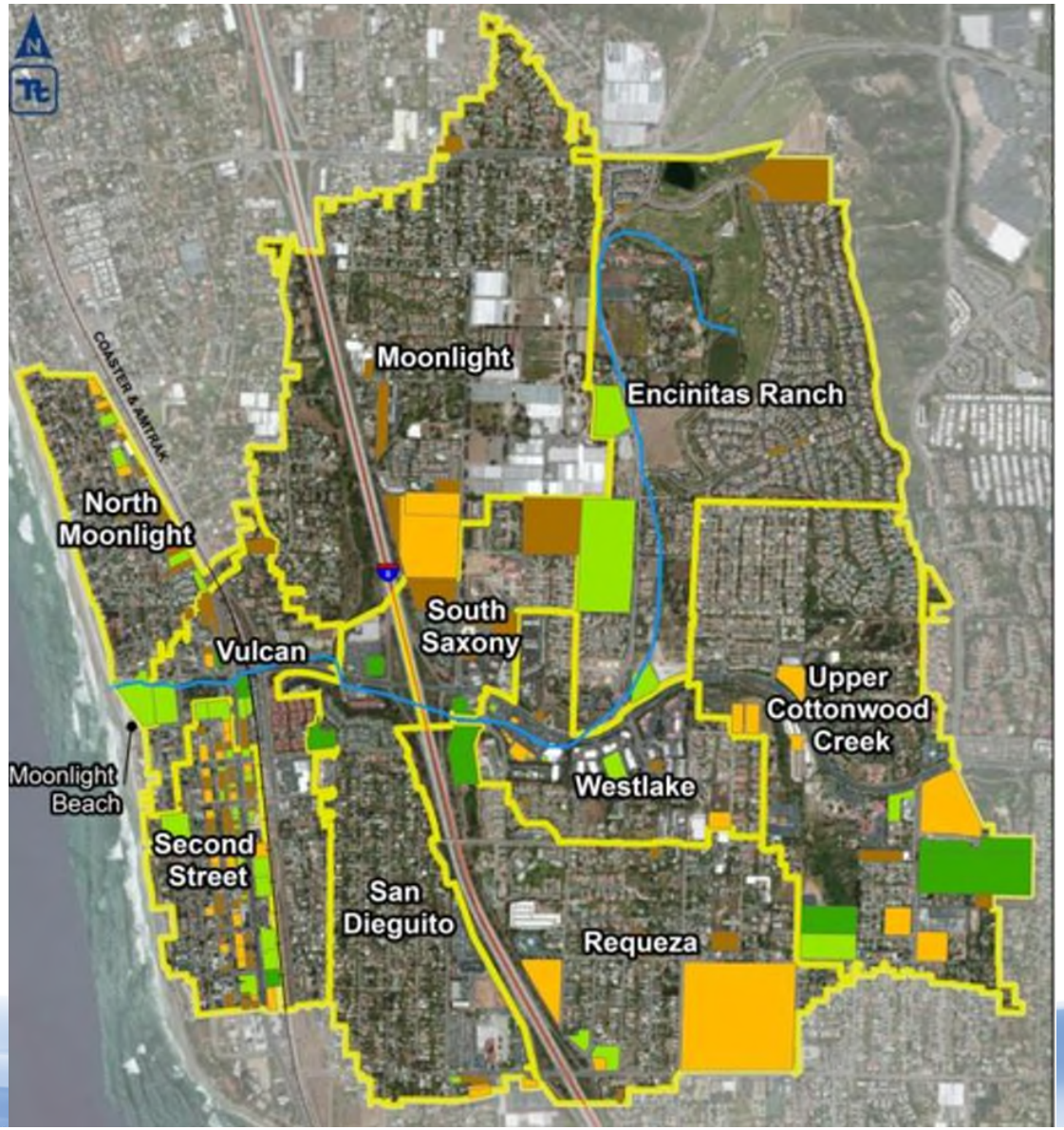
Parcel-based green infrastructure	ROW green infrastructure
- Public ownership (except in special cases, per Table 3-1) - Proximity to targeted subwatershed - Proximity to environmentally sensitive or protected areas - Infiltration capacity - Parcel size (large-scale) - Impervious parcel area - Percent impervious - Proximity to storm drainage networks - Proximity to contaminated soils - Proximity to existing BMPs - Proximity to parks and schools - Contributing drainage area (large-scale)[1] - Drainage area percent imperviousness (large-scale) - Known stormwater/MS4 capacity issues	- Proximity to targeted subwatershed - Infiltration capacity - Available width

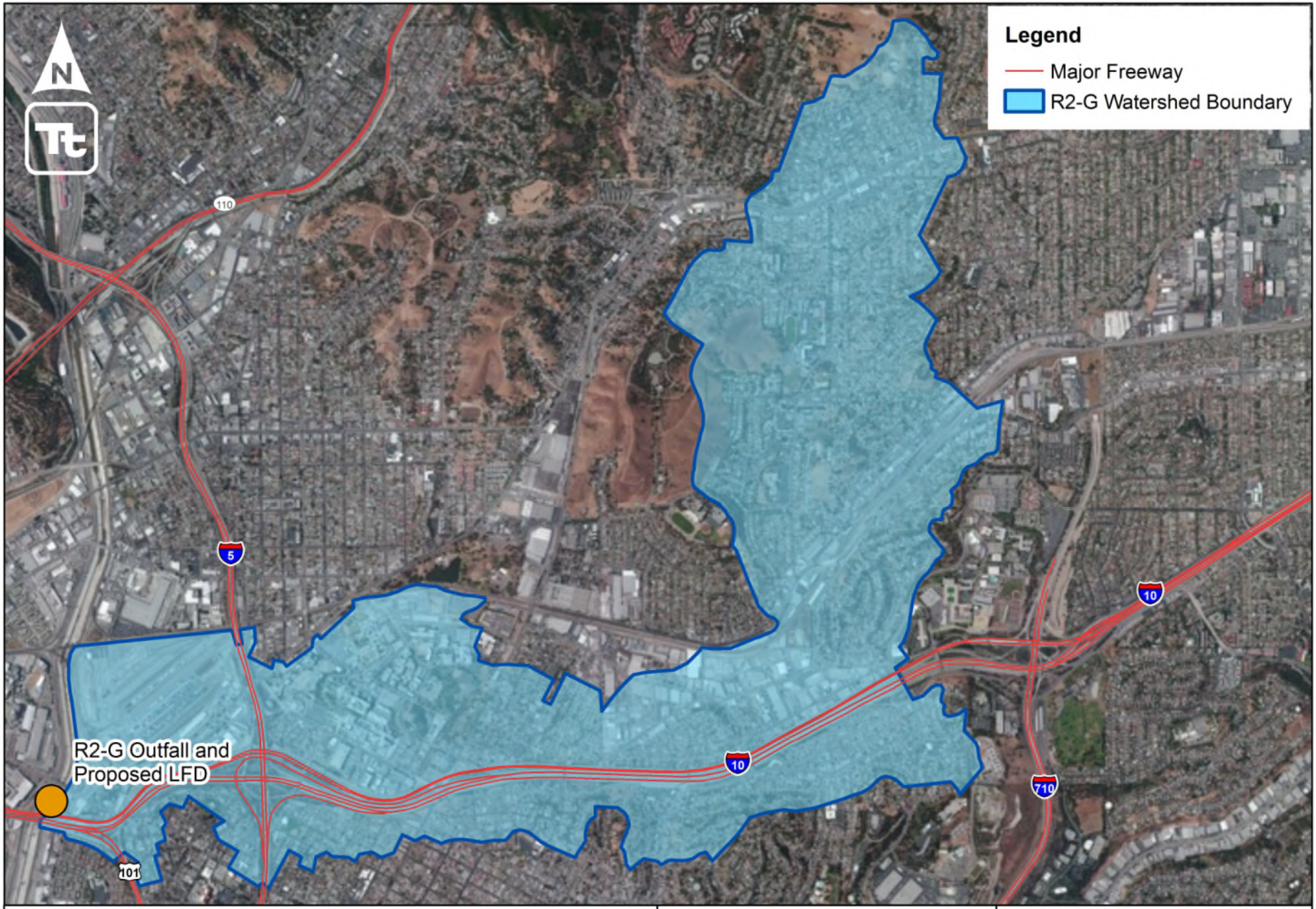
Identifying Green Infrastructure Opportunities – GIS Screening

Factor	Score (5 = Highest Priority, 1 = Lowest Priority)				
	5	4	3	2	1
Public ownership	City- or town-owned public parcels and ROWs	Other-owned public parcels (schools and universities, state and federal facilities, utilities, etc.) and certain private parcels.			
Proximity to target subwatershed[1]	Within target subwatershed				Within subwatershed draining to target watershed
Proximity to environmentally sensitive or protected areas (feet)[2]	< 100, but not within a sensitive or protected area				
Infiltration Capacity (HSG soil type)	A, B		C		D
Impervious area (acres)	> 1	> 0.5	> 0.25	> 0.1	
% Imperviousness	60%–80%	80%–90%			< 50%
Proximity to storm drainage network (feet)			< 100	< 300	> 300

Identifying Green Infrastructure Opportunities – GIS Screening

Identifying Green Infrastructure Opportunities – GIS Screening





R2-G Watershed

NAD_1983_StatePlane_California_V_FIPS_0405_feet
Map produced 07-03-2013

0 250 500 1,000
Meters

0 0.25 0.5 1
Miles

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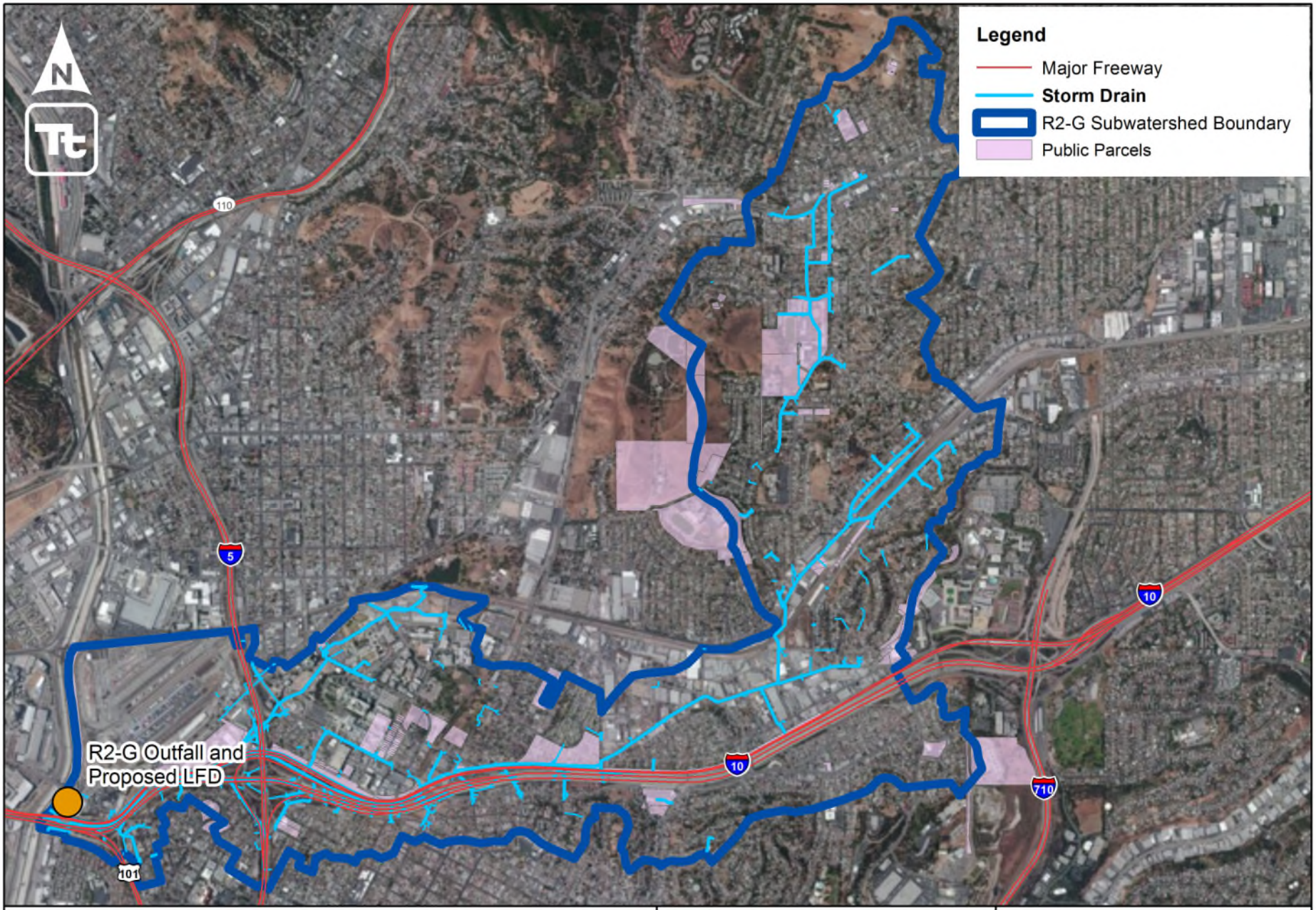

R2-G Parcel Ownership

NAD_1983_StatePlane_California_V_FIPS_0405_feet
Map produced 07-03-2013

0 250 500 1,000 Meters

0 0.25 0.5 1 Miles

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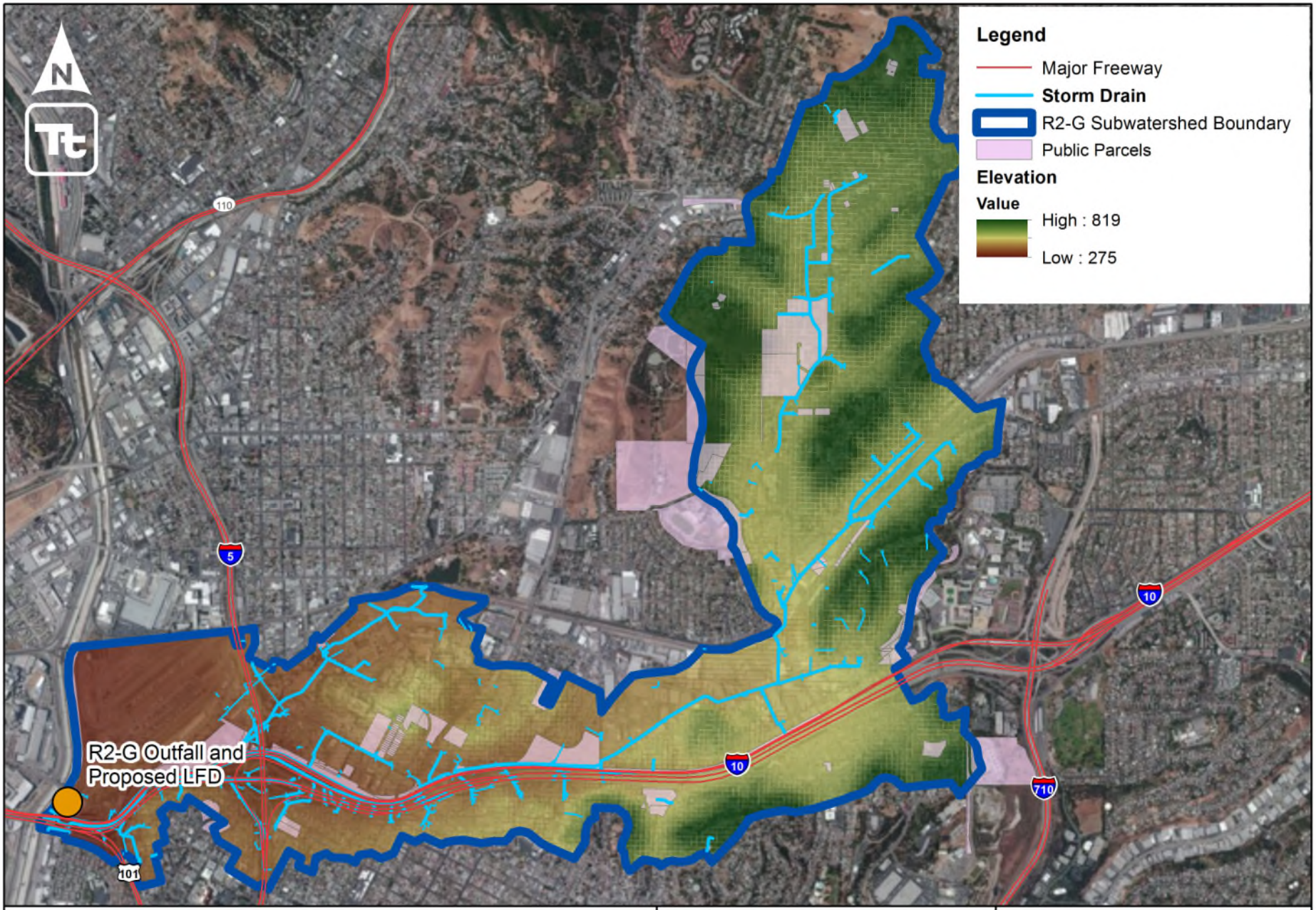

R2-G Screening and Prioritization

NAD_1983_StatePlane_California_V_FIPS_0405_feet
Map produced 07-03-2013

0 250 500 1,000 Meters

0 0.25 0.5 1 Miles

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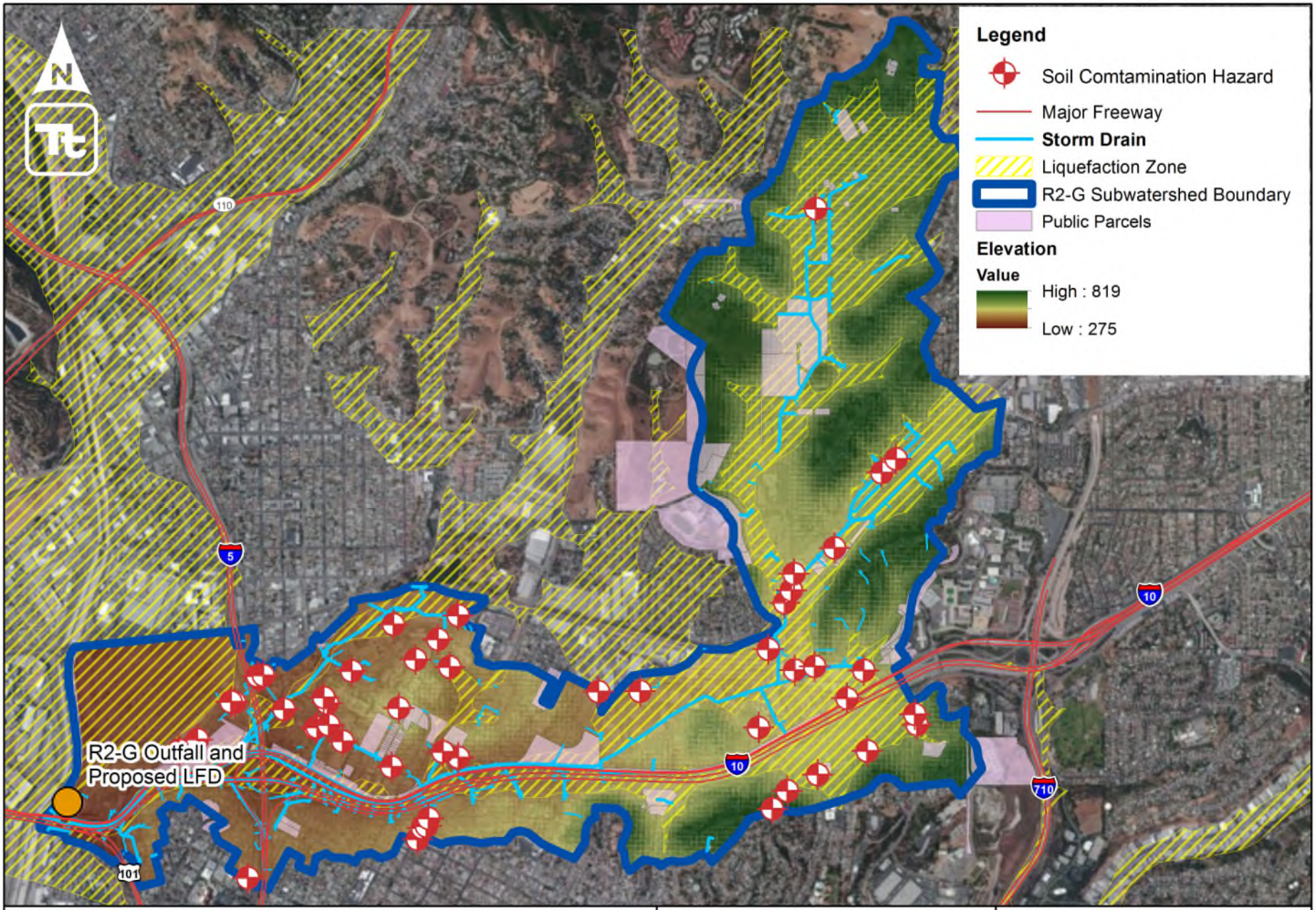

R2-G Screening and Prioritization

NAD_1983_StatePlane_California_V_FIPS_0405_feet
Map produced 07-03-2013

0 250 500 1,000 Meters

0 0.25 0.5 1 Miles

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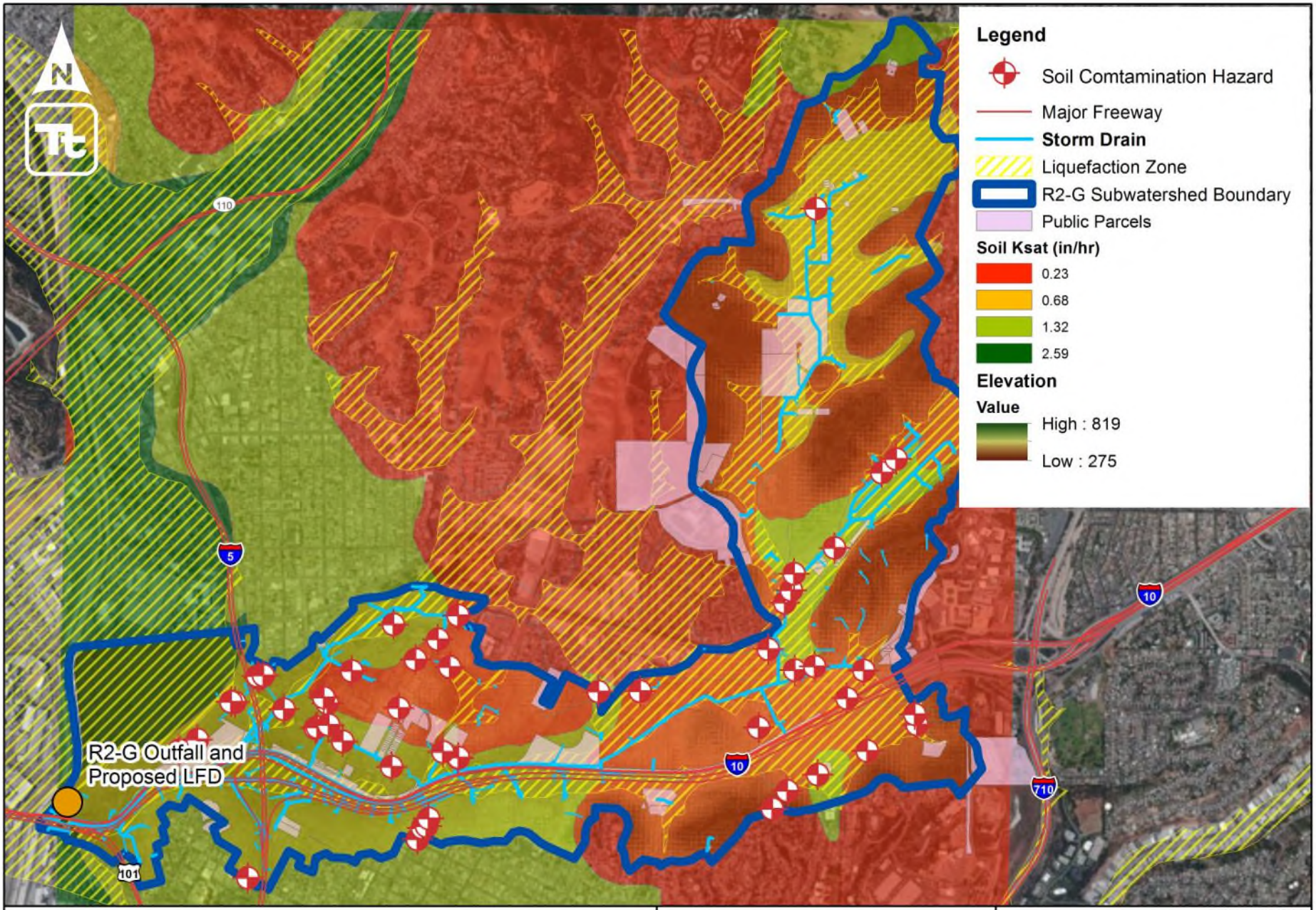

R2-G Screening and Prioritization

NAD_1983_StatePlane_California_V_FIPS_0405_feet
Map produced 07-03-2013

0 250 500 1,000 Meters

0 0.25 0.5 1 Miles

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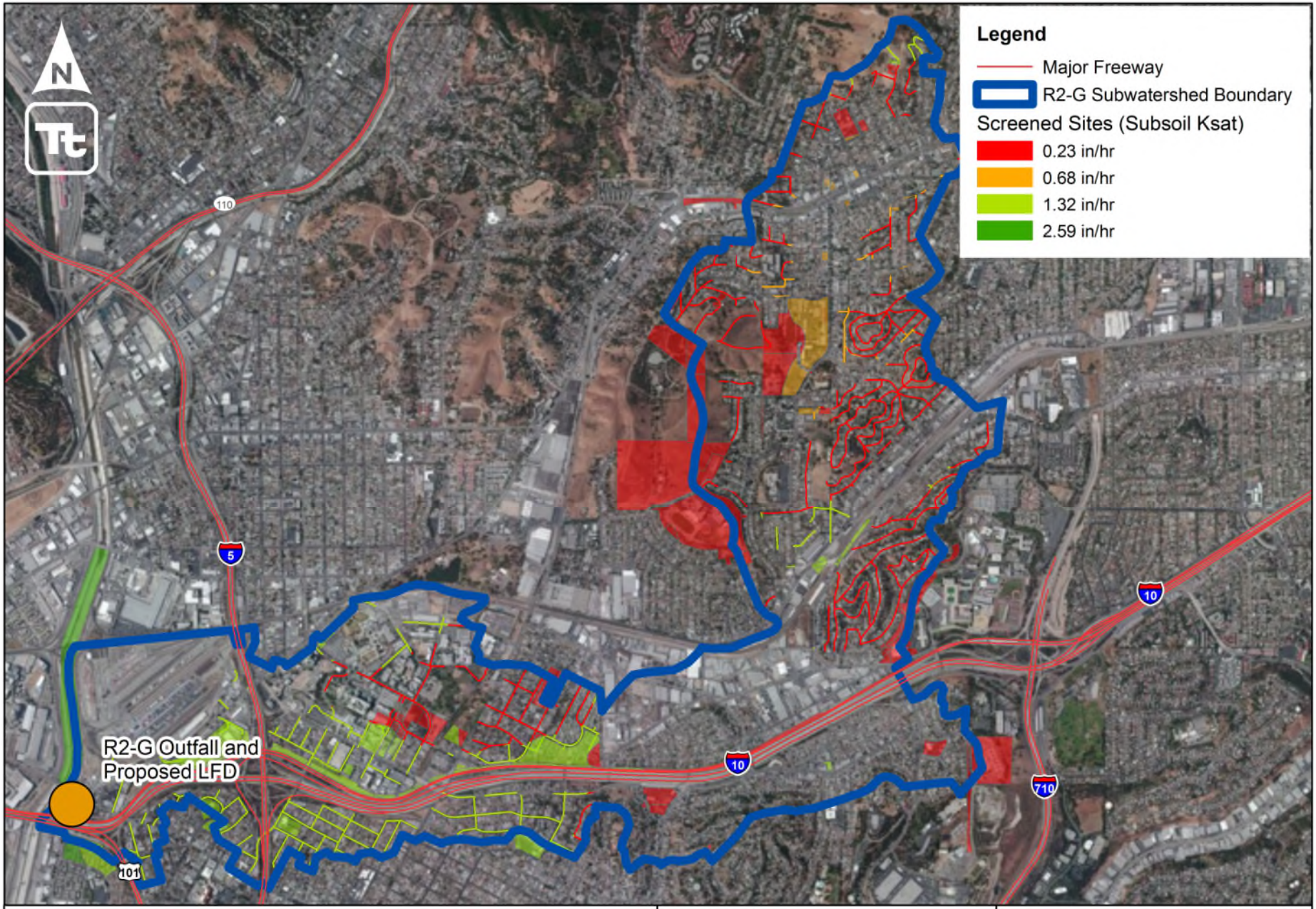

R2-G Screened and Prioritized Sites

NAD_1983_StatePlane_California_V_FIPS_0405_feet
Map produced 07-03-2013

0 250 500 1,000 Meters

0 0.25 0.5 1 Miles

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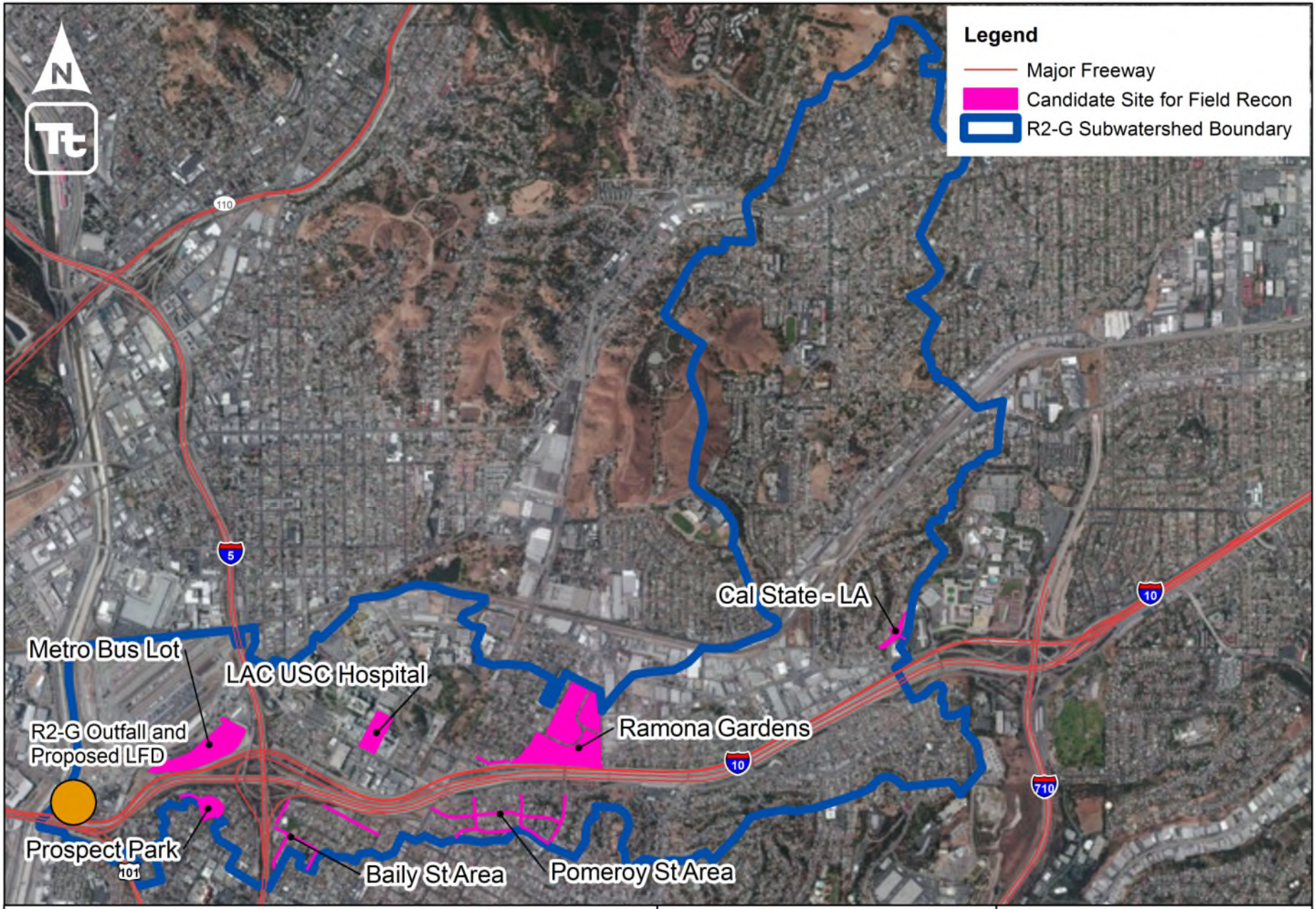

R2-G Candidate Sites for Field Reconnaisance

NAD_1983_StatePlane_California_V_FIPS_0405_feet
Map produced 07-03-2013

0 262.5 525 1,050 Meters

0 0.25 0.5 1 Miles

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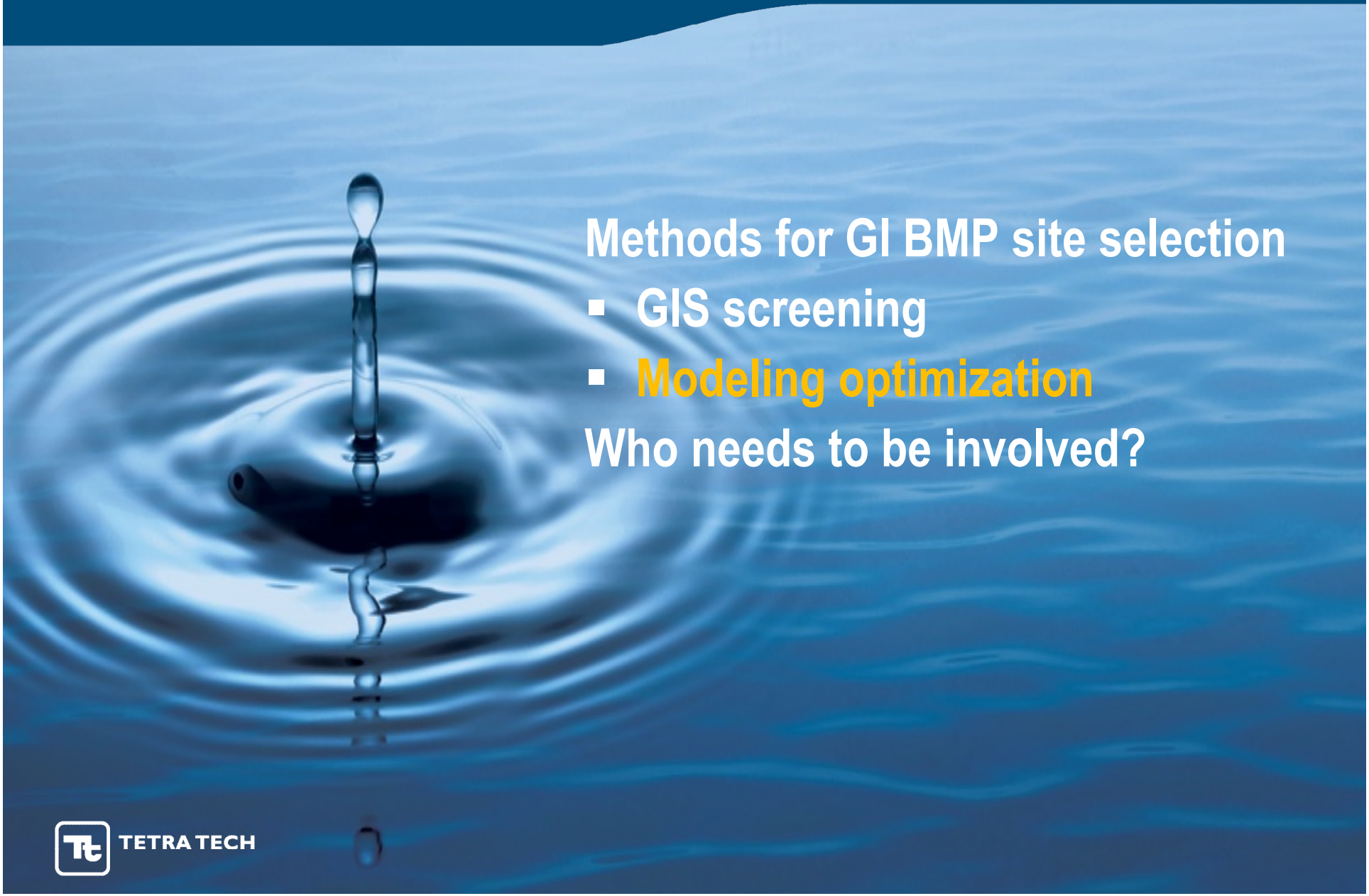
What's missing?

Given climate change projections for Albuquerque, what other factors do you need to add to this GIS screening?

How do you select good sites for green infrastructure?



Methods for GI BMP site selection

- GIS screening
- Modeling optimization

Who needs to be involved?

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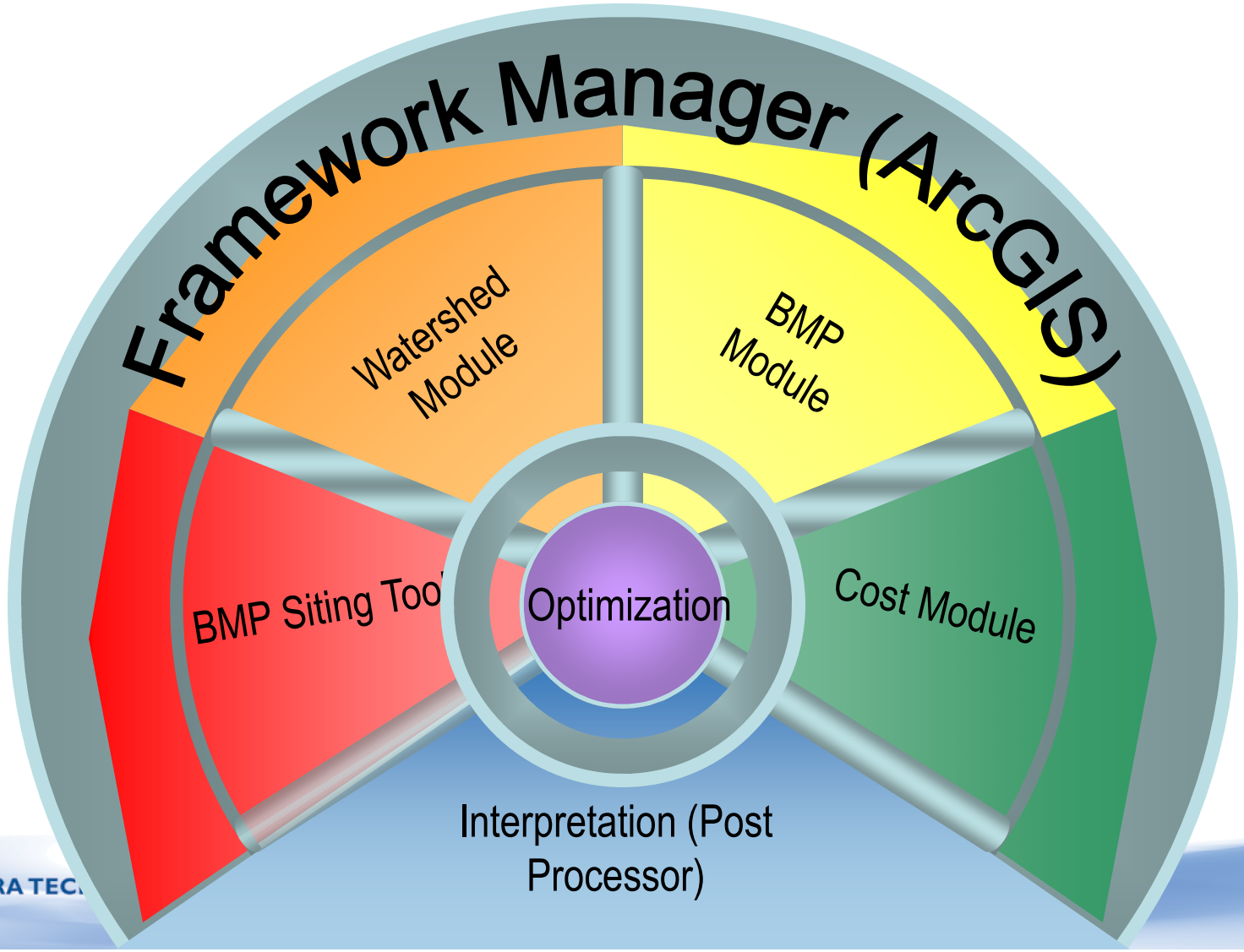
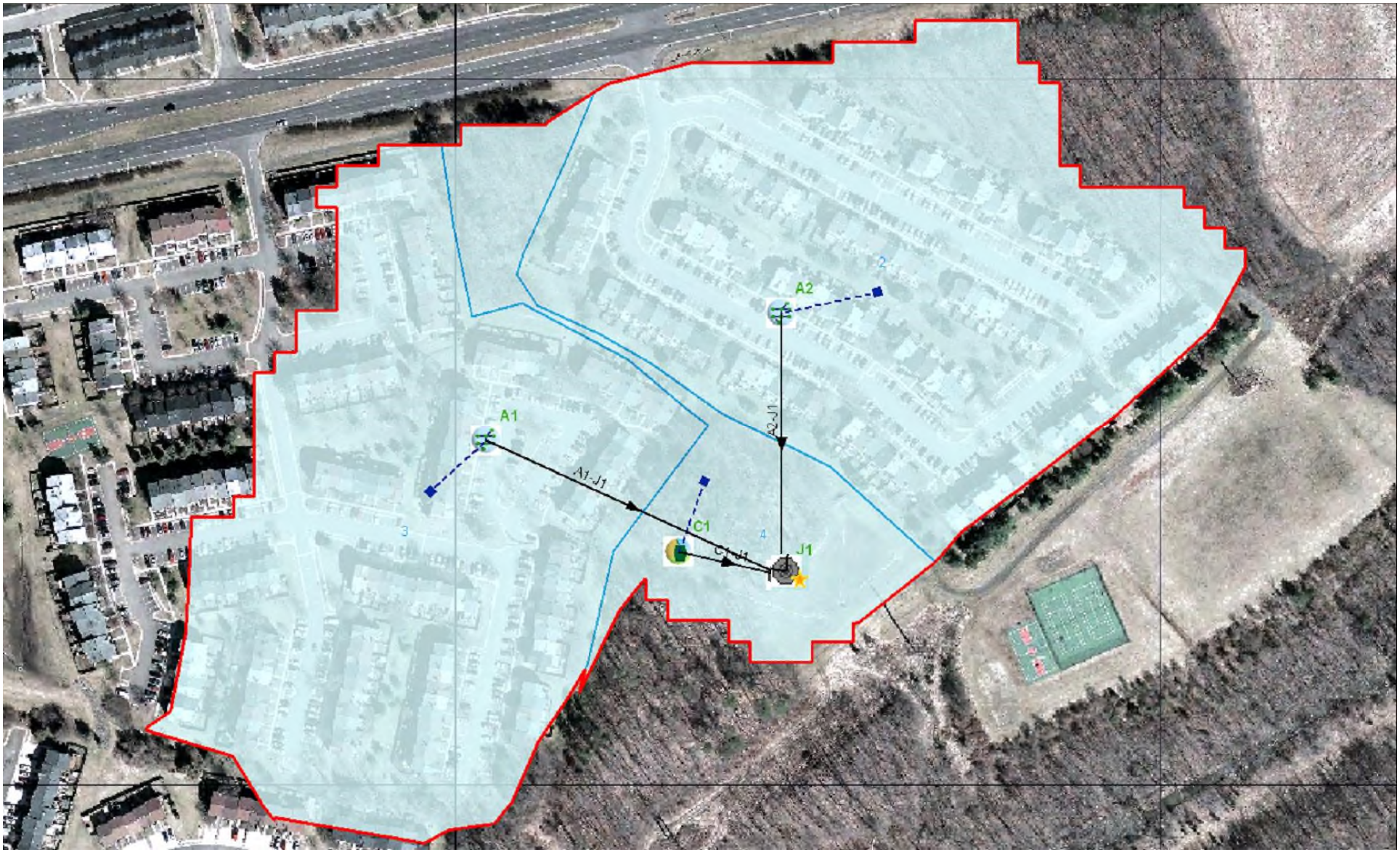
SUSTAIN – **S**ystem for **U**rban **S**tormwater **T**reatment and **A**nalysis **IN**tegration

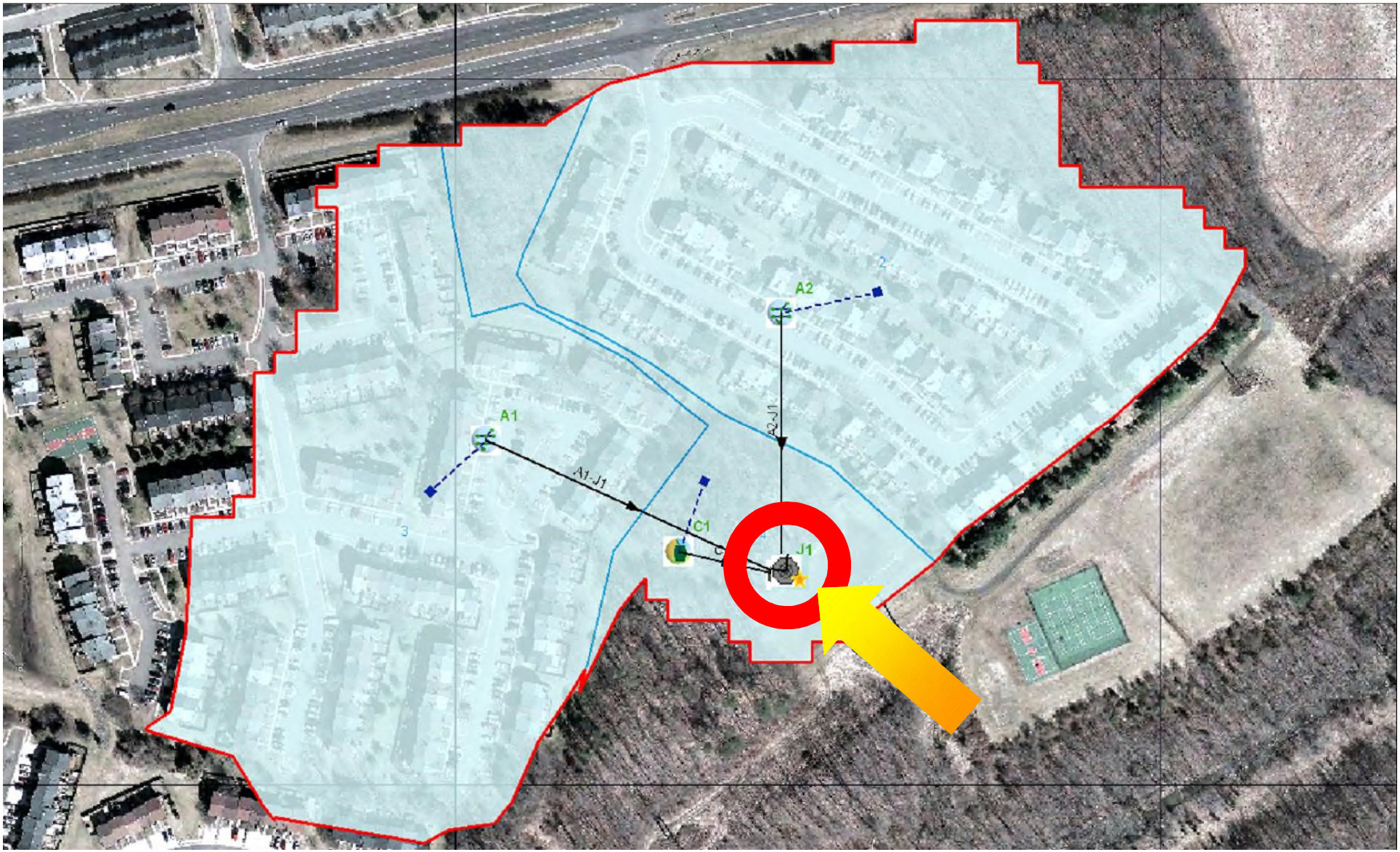
EPA Sponsored GIS-based framework to support decision-making



Place BMPs and Network Linkages

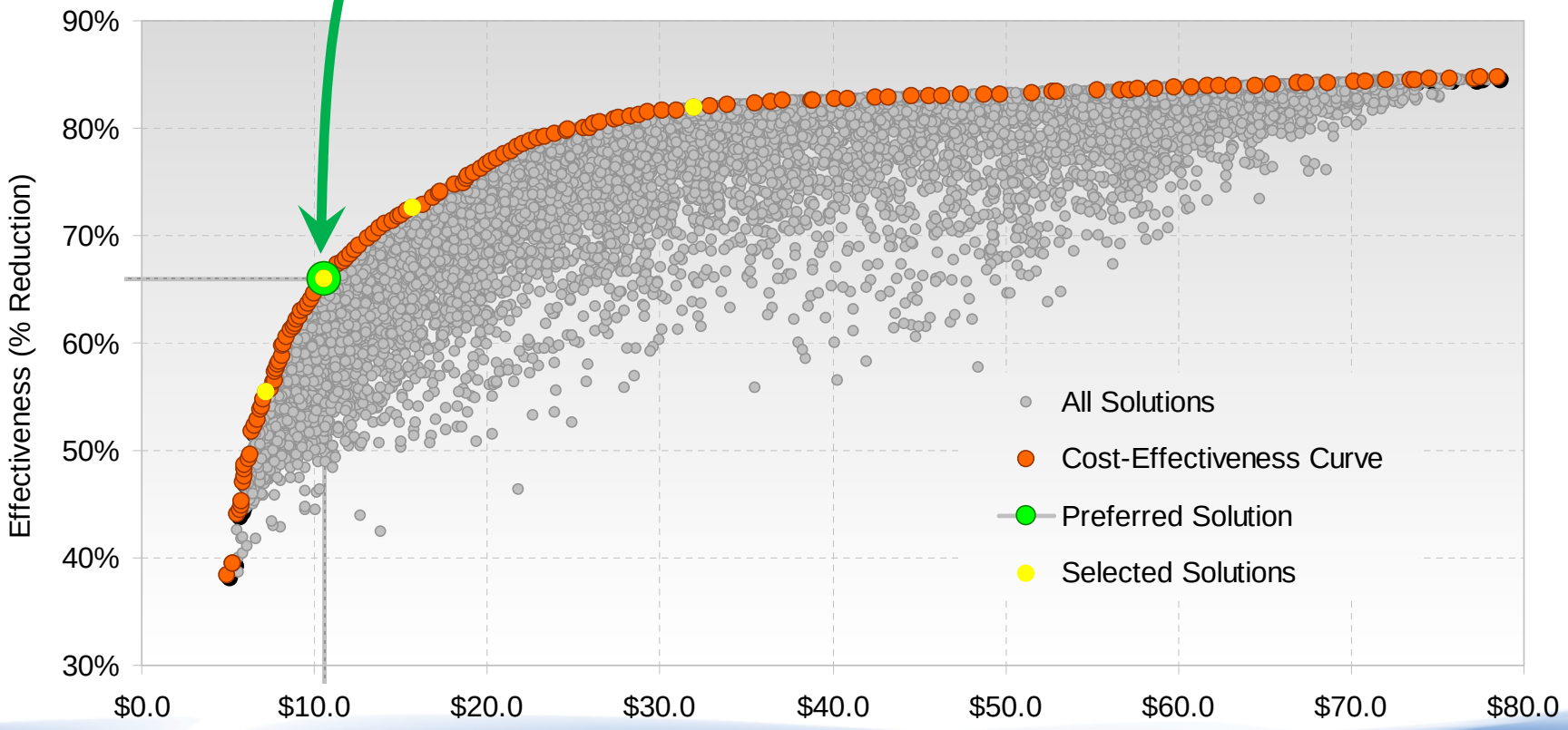


Identify Assessment Points & Optimization Objectives/Constraints



Results
Cost-Effectiveness

Solution	Cost ($ million)	Annual Volume Reduction (%)
1	$7.2	55.4%
2	**$10.6**	**66.0%**
3	$15.7	72.6%
4	$32.0	81.9%



Benefits of Optimization Approach

- Provides recommended location, size, order and phasing of structural BMPs
- Greater long-term cost savings
- Higher assurance investments in BMPs will meet objectives
- Realistic assessment of what's achievable
- Supports adaptive approach

How do you select good sites for green infrastructure?

Methods for GI BMP Site Selection

- GIS Screening
- Modeling Optimization

Who needs to be involved?

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Who needs to be part of the discussions and decisions on site selection?

- Stormwater Engineering
- Planning Dept.
  - Long Range Planning
  - Development Review
- Water Utility
- Transportation
  - Planning
  - Engineering
- Parks and Recreation
- City Arborist
- School System
- State DOT
- Regional Land Trust
- Homeowners' Associations
- Who else?

Questions and Discussion