Paradise Valley Watershed Study Public Meeting #2

Cheney Watershed

Wednesday, May 18th

Town of Paradise Valley
WATERSHED STUDIES

Dibble Engineering
Michael Baker INTERNATIONAL
LOGANSIMPSON

Meeting Purpose

- Introduce possible solutions to identified flooding hazards to Cheney Watershed residents
- In some areas, consider alternative solutions
- Discuss remaining steps in the process
- Get your feedback and initial impressions!

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Project Purpose

- Continue the community discussion about flooding and what to do about it
- Identify Flooding and Erosion Hazards
- Gauge Public Tolerance for Flood Risk
- Investigate Possible Solutions to Flooding
- Develop a Master Plan for Drainage Improvements
- Update the Town's Stormwater Guidelines
- Develop Town Detention/Retention Requirements

…and…

- Solicit Your Help and Keep You Informed!

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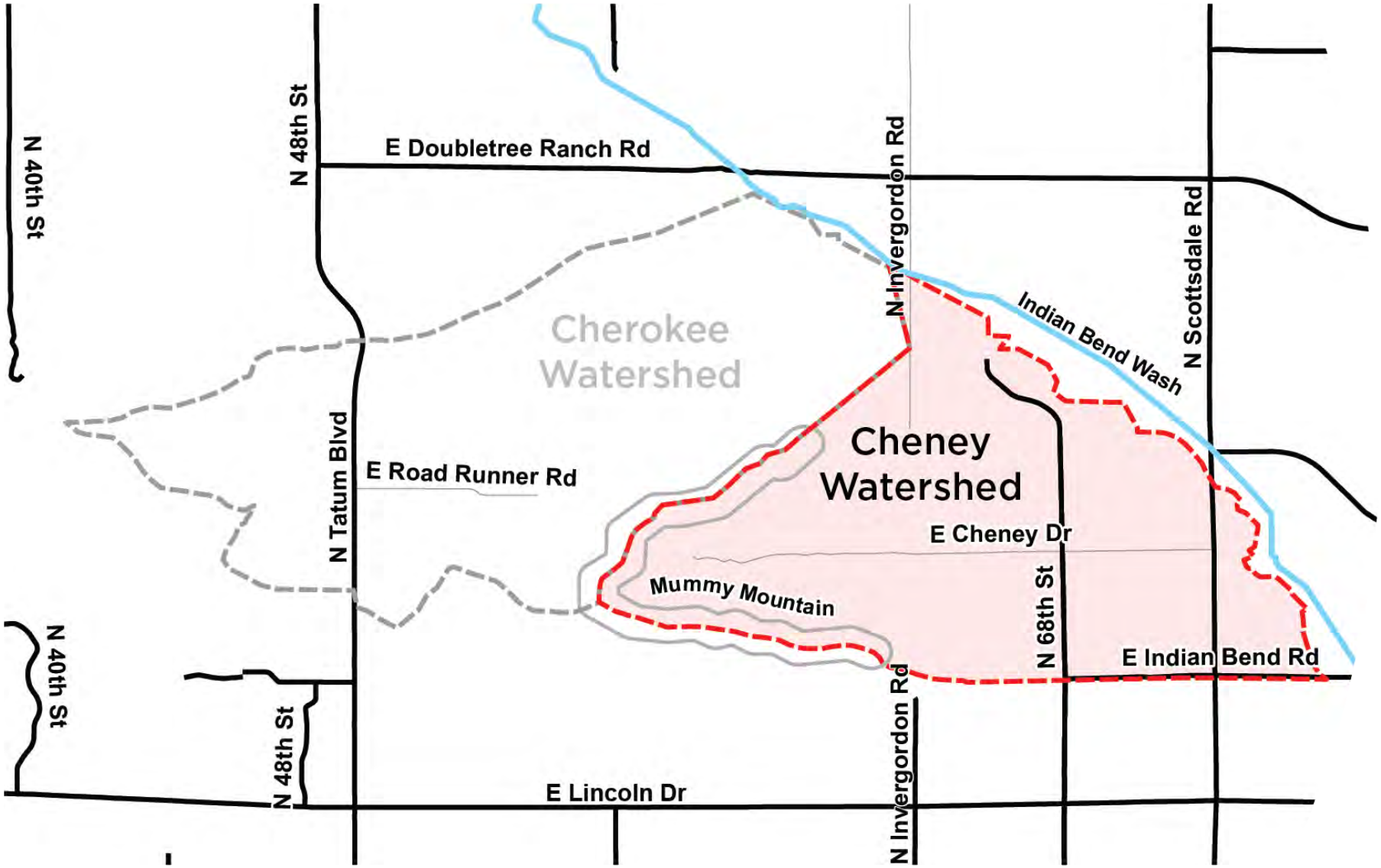
Study Area



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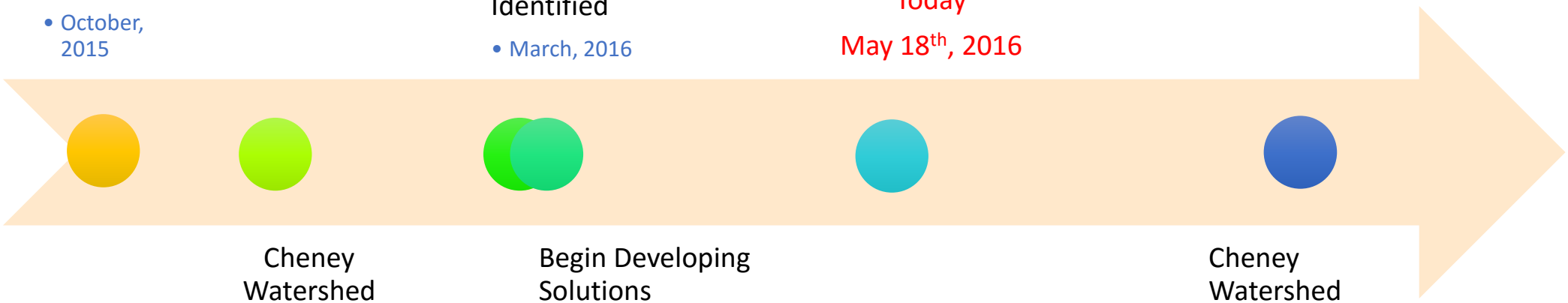
Project Timeline



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Changes to the Watershed

Potential Solutions to Identified Hazards

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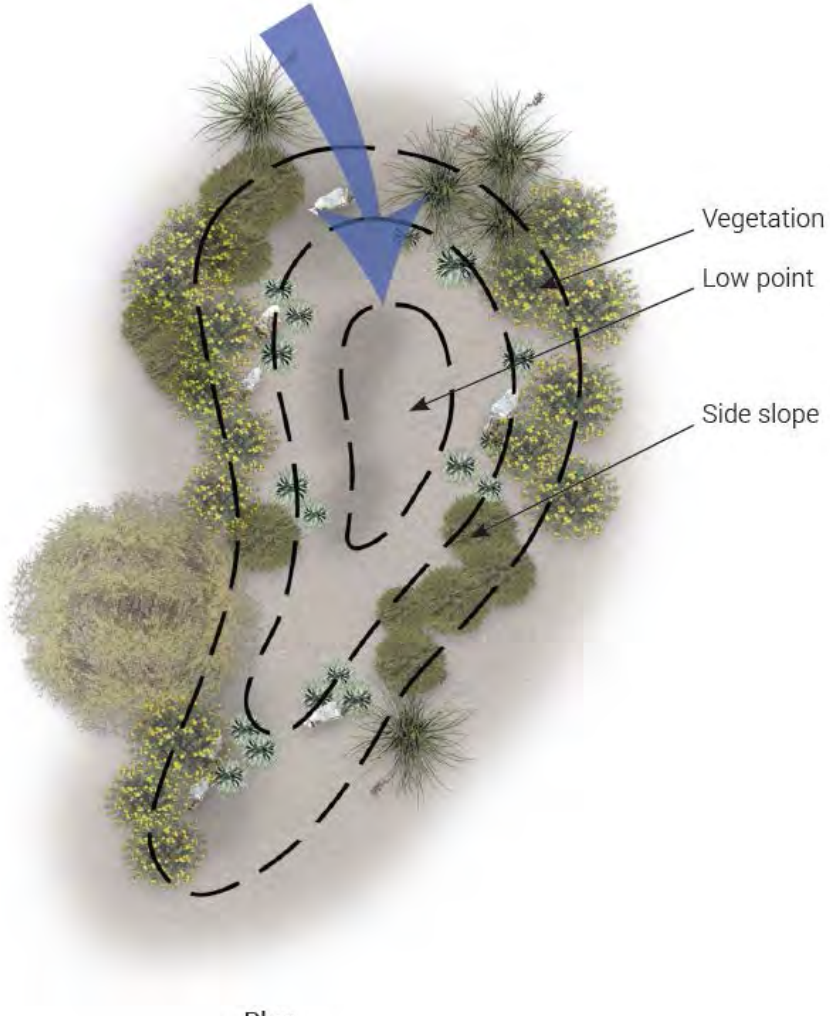
Examples - Basins



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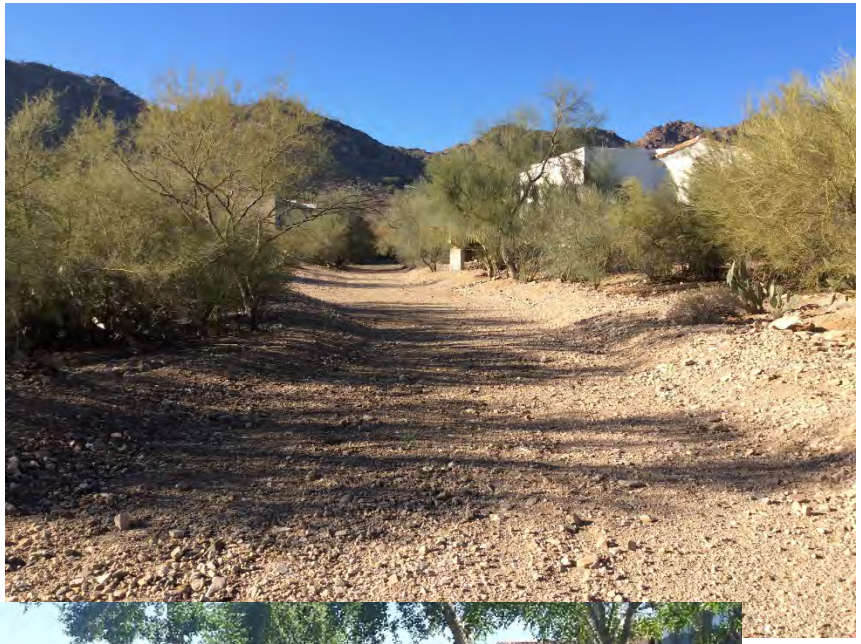
Examples – Vegetated Swale

Plan



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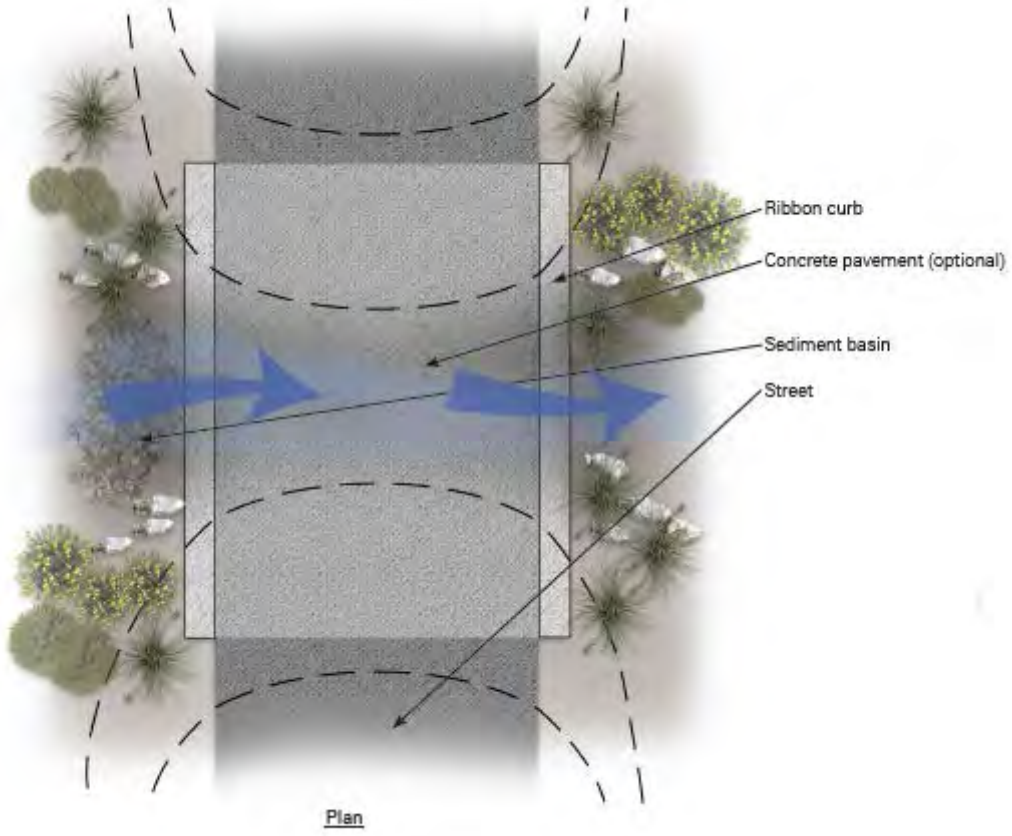
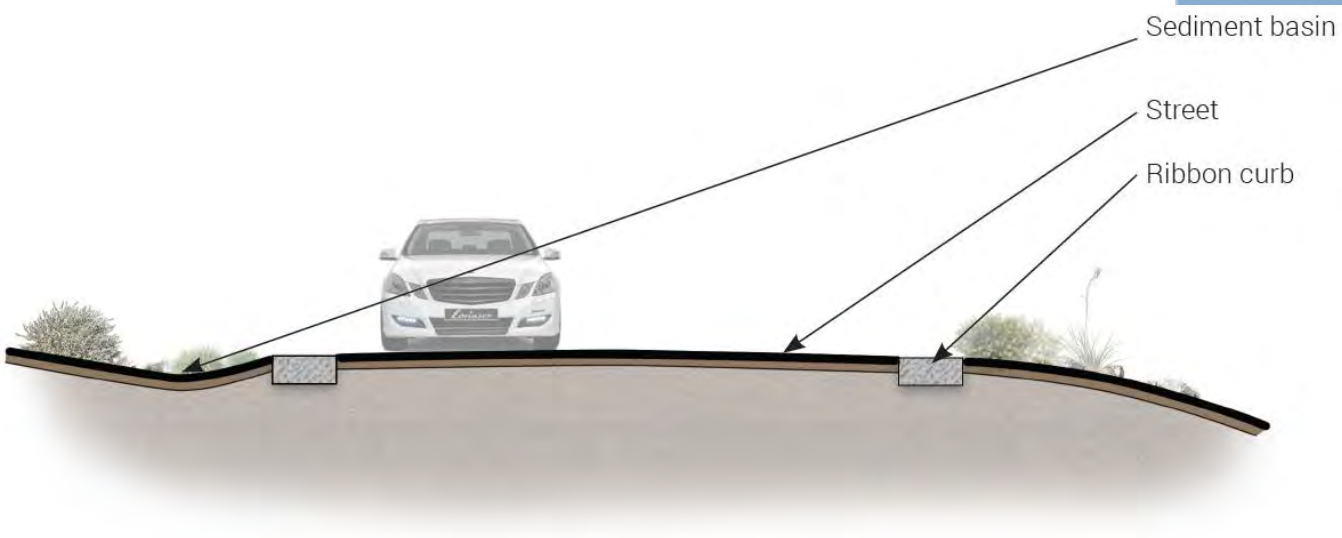
Examples – At Grade Crossing



Plan



Section

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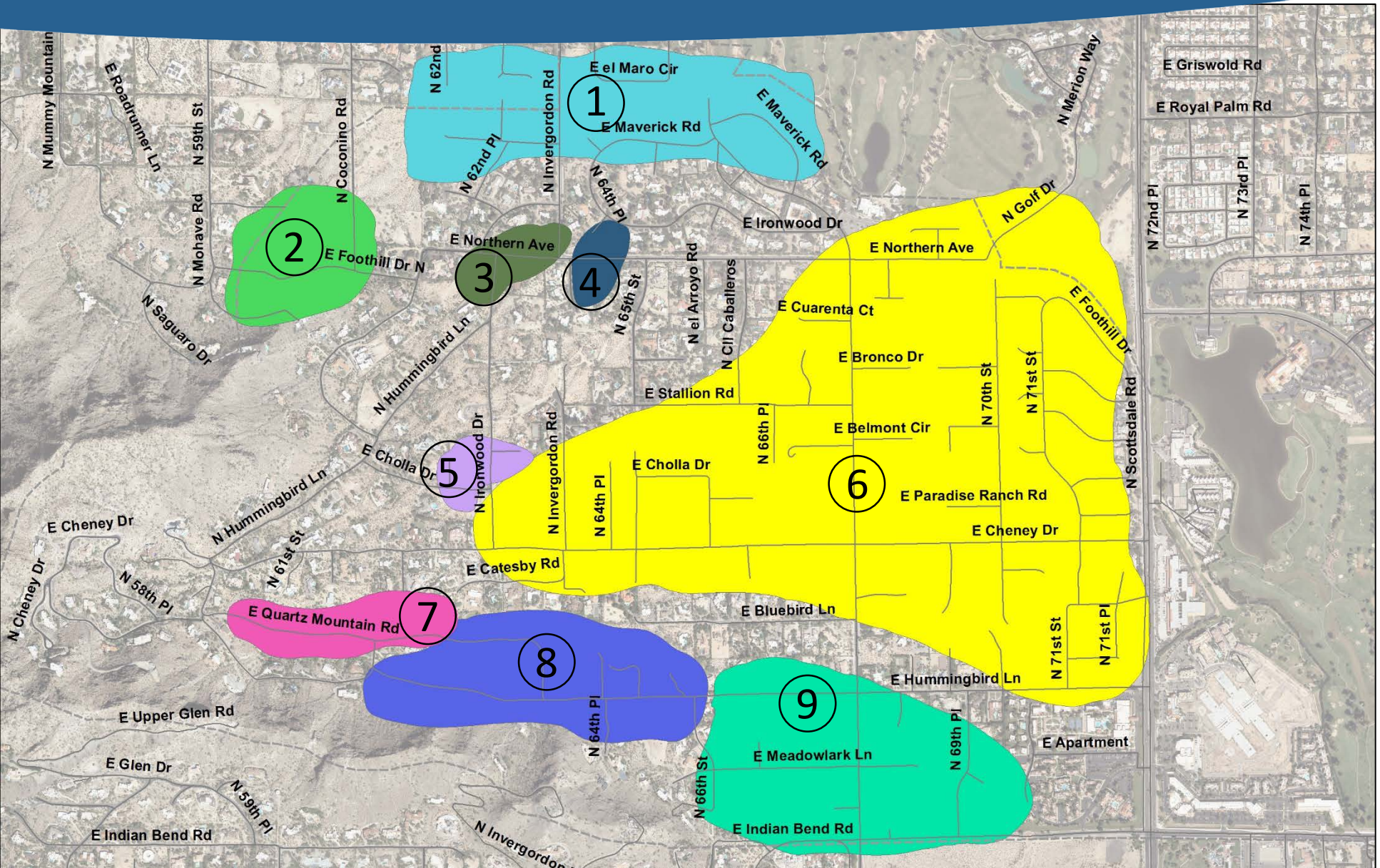
Cheney Watershed Improvement Areas



Legend

- 1 Maverick
- 2 Foothill
- 3 Spot A
- 4 Spot B
- 5 Spot C
- 6 Cheney
- 7 Quartz Mountain
- 8 Hummingbird
- 9 Mockingbird

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WATERSHED STUDIES

Definitions

- Storm Mains
- Storm Mains (FCDMC)
- Improved Channel
- Sediment Channel
- Embankment Protection
- Low Impact Development (LID)
- Sedimentation Basin
- Retention Basin
- At-Grade Crossing
- Public Provided Problem Areas
- Public Works Provided Problem Areas

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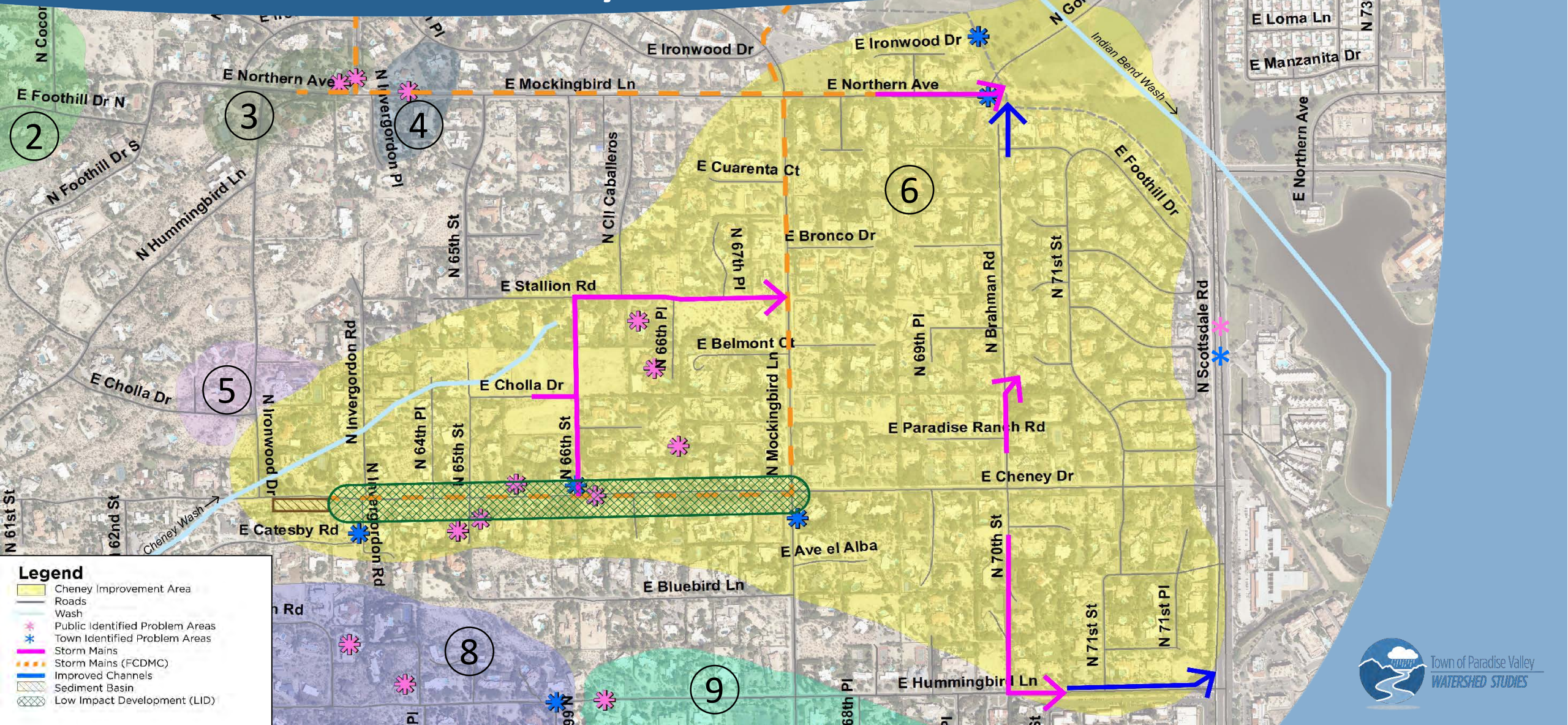
Cheney Improvement Area

Alternative Cheney #1



Legend

- Cheney Improvement Area
- Roads
- Wash
- Public Identified Problem Areas
- Town Identified Problem Areas
- Storm Mains
- Storm Mains (FCDMC)
- Improved Channels
- Sediment Basin
- Low Impact Development (LID)

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WATERSHED STUDIES

Cheney Improvement Area

Alternative Cheney #1

Important Characteristics

- Underground storm drain from 66th St. to Mockingbird Ln. (Approximately ½ mile)
- Roadway modifications and collection inlets on Cheney Drive and 66th Street
- Sediment capture basin to reduce road and yard debris
- Context sensitive Low Impact Development (LID) improvements
- Downstream components for isolated problem areas
- Compliments FCDMC planned infrastructure
- **$$$**

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WATERSHED STUDIES

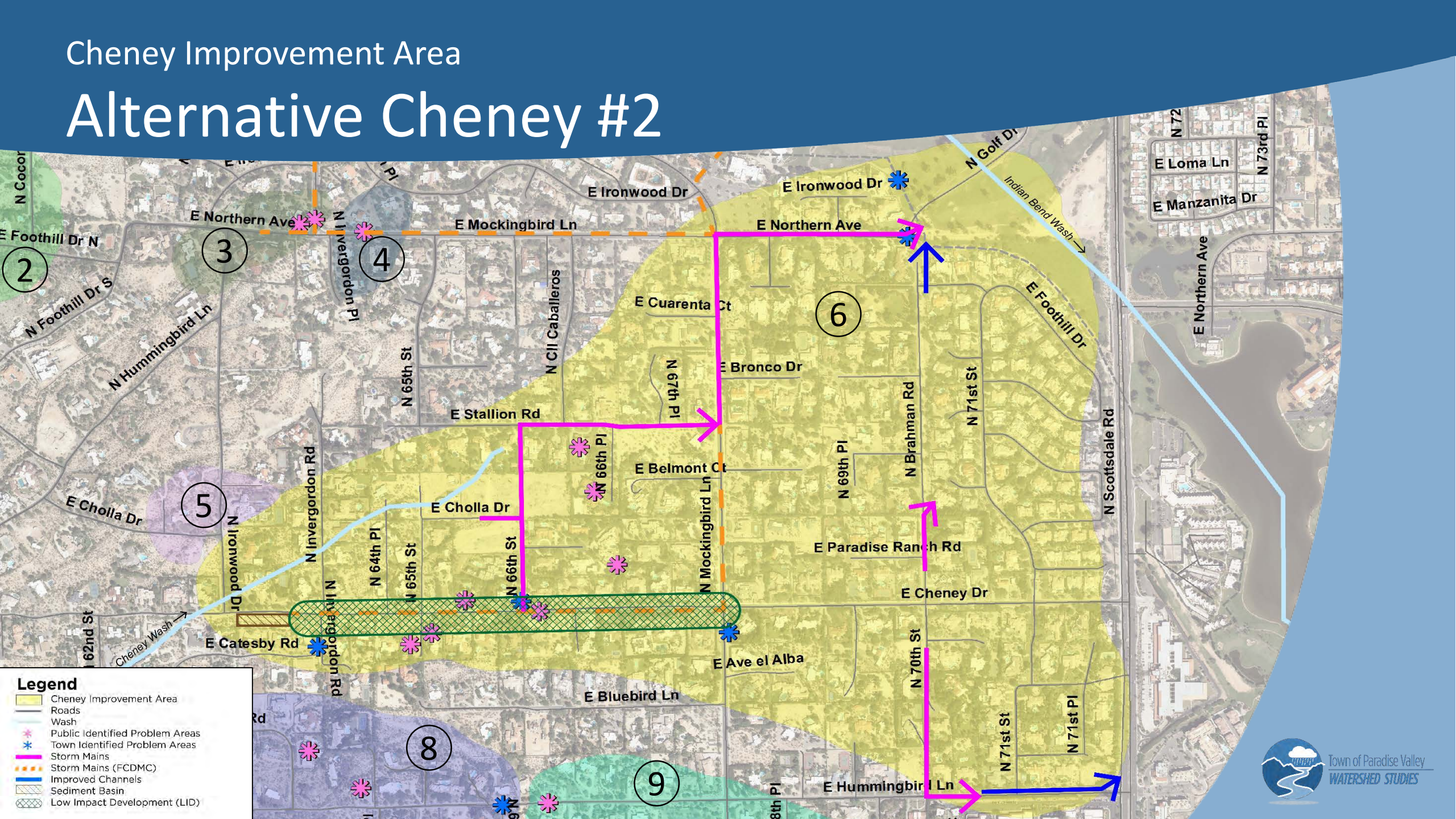
Cheney Improvement Area

Alternative Cheney #1

Pros	Cons
• Least costly • Very context sensitive • Limits disruption to low traffic areas • Serves most critical area • Provides benefit independent of and in tandem with FCDMC planned facilities	• Least breadth of benefit area • Local street alignments limit system sizing • Release to Mockingbird Lane limits system sizing • Underground facilities are more difficult to maintain

Cheney Improvement Area

Alternative Cheney #2



Cheney Improvement Area

Alternative Cheney #2

Important Characteristics

- Extends Cheney 1 underground storm drain to Indian Bend Wash (Approximately 1 mile) to expand benefit area
- Compliments and enlarges FCDMC planned infrastructure
- **$$$$**

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WATERSHED STUDIES

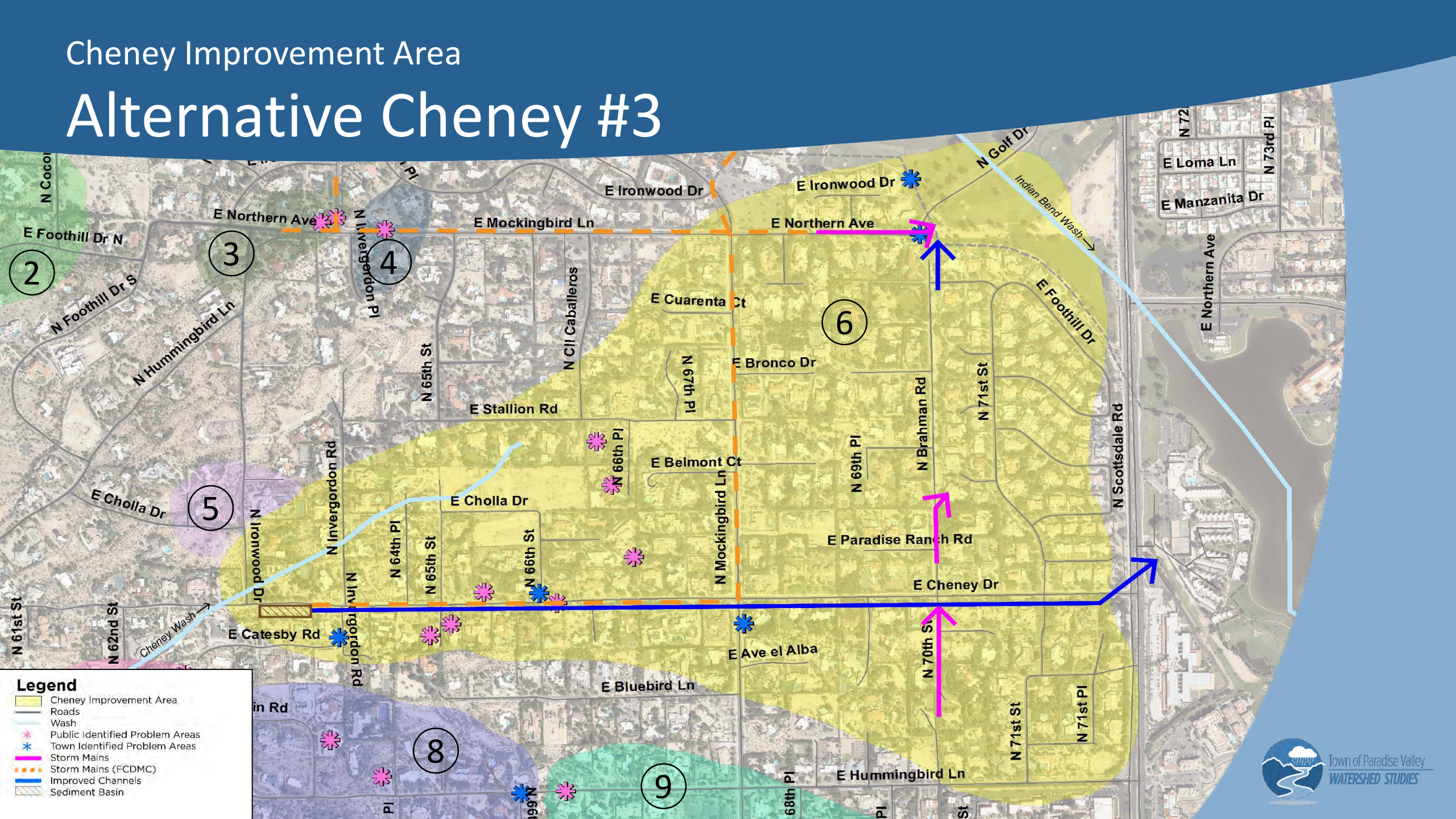
Cheney Improvement Area

Alternative Cheney #2

Pros	Cons
• Very context sensitive • Serves both most critical area and secondary areas • Provides benefit independent of and in tandem with FCDMC planned facilities	• Not least costly • Requires a large system in Mockingbird Lane • Potential for significant traffic disruption of primary north-south collector • Available right-of-way limits some system sizing • Underground facilities are more difficult to maintain

Cheney Improvement Area

Alternative Cheney #3



Cheney Improvement Area

Alternative Cheney #1

Important Characteristics

- Open channel system from Invergordon Road to Indian Bend Wash (Approximately 1 mile)
- Roadway modifications to Cheney Drive including curb and gutter and an alignment shift
- Sediment capture basin to reduce road and yard debris
- Context sensitive Low Impact Development (LID) improvements
- Downstream components for residual runoff
- Compliments FCDMC planned infrastructure
- **$$$$$**

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Cheney Improvement Area

Alternative Cheney #3

Pros	Cons
• Largest breadth of benefit area-nearly all areas in Cheney Improvement Area • Provides opportunity for pedestrian corridor • Least level of long term maintenance • Provides benefit independent of and in tandem with FCDMC planned facilities	• Most costly • Requires difficult crossing of Scottsdale Road • Requires new easements and modification to existing yards

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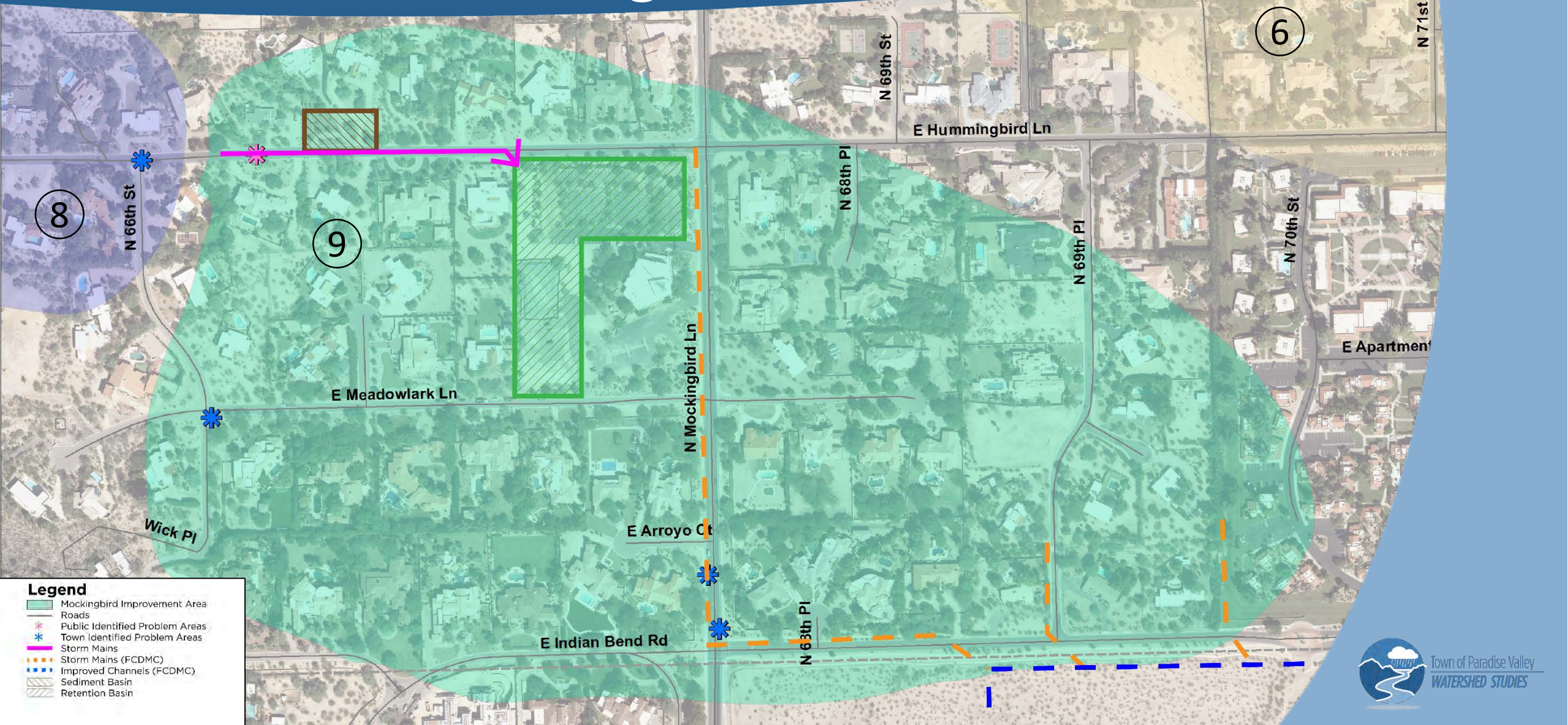
Mockingbird Improvement Area

Alternative Mockingbird #1



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Mockingbird Improvement Area

Alternative Mockingbird #1

Important Characteristics

- Underground storm drain in Hummingbird Lane (Approximately 1000 feet)
- Collection inlets on Hummingbird Lane
- Sediment capture basin to reduce road and yard debris
- Above or below ground stormwater storage
- Compliments FCDMC planned infrastructure
- **$$$$**

Town of Paradise Valley
WATERSHED STUDIES

Mockingbird Improvement Area

Alternative Mockingbird #1

Pros	Cons
• Takes advantage of existing undeveloped area • Larger breadth of benefit area • A potential amenity to the church • Limits disruption to low traffic areas • Provides benefit independent of and in tandem with FCDMC planned facilities	• More costly • Dependent on church's long term plans • Requires new easements • Underground storage facilities are more difficult to maintain

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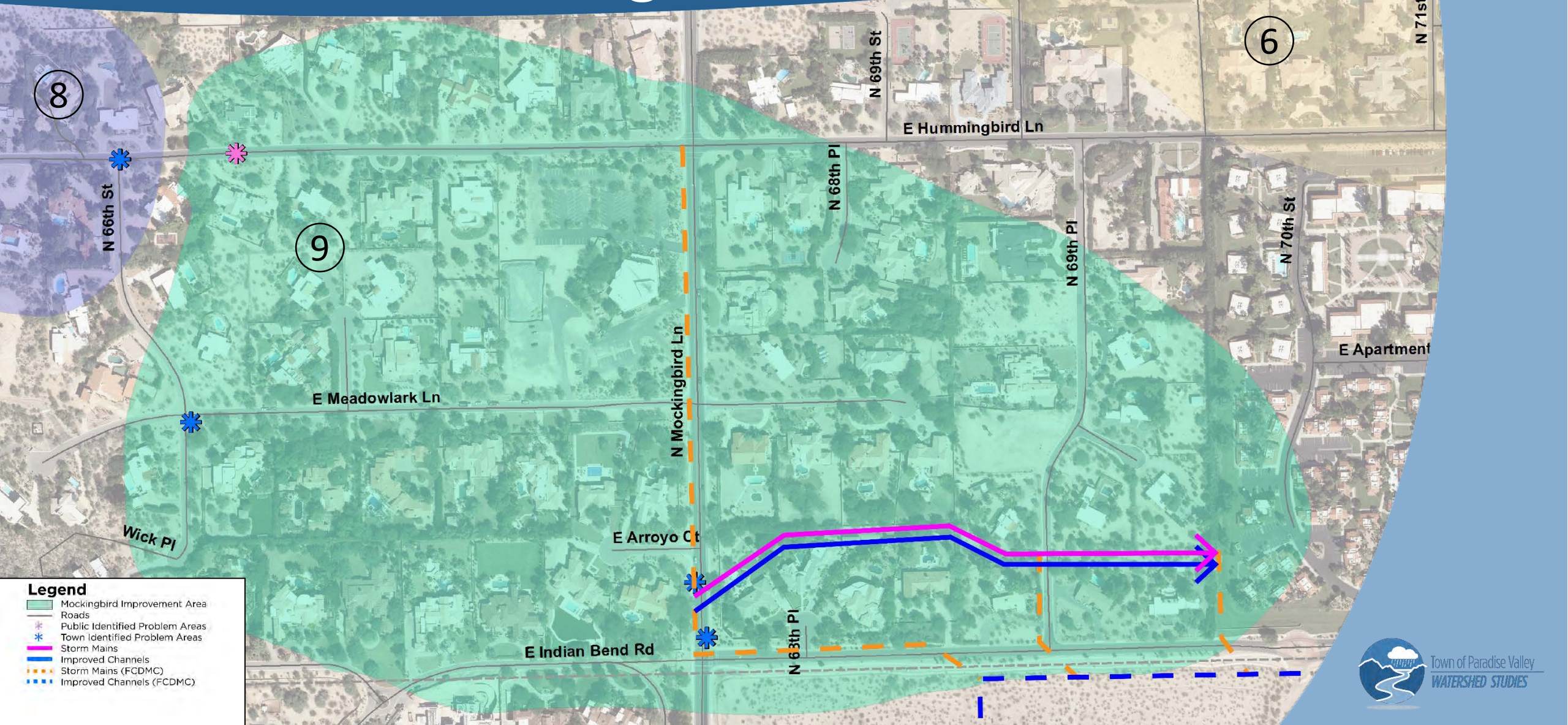
Mockingbird Improvement Area

Alternative Mockingbird #2



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Alternative Mockingbird #2

Important Characteristics

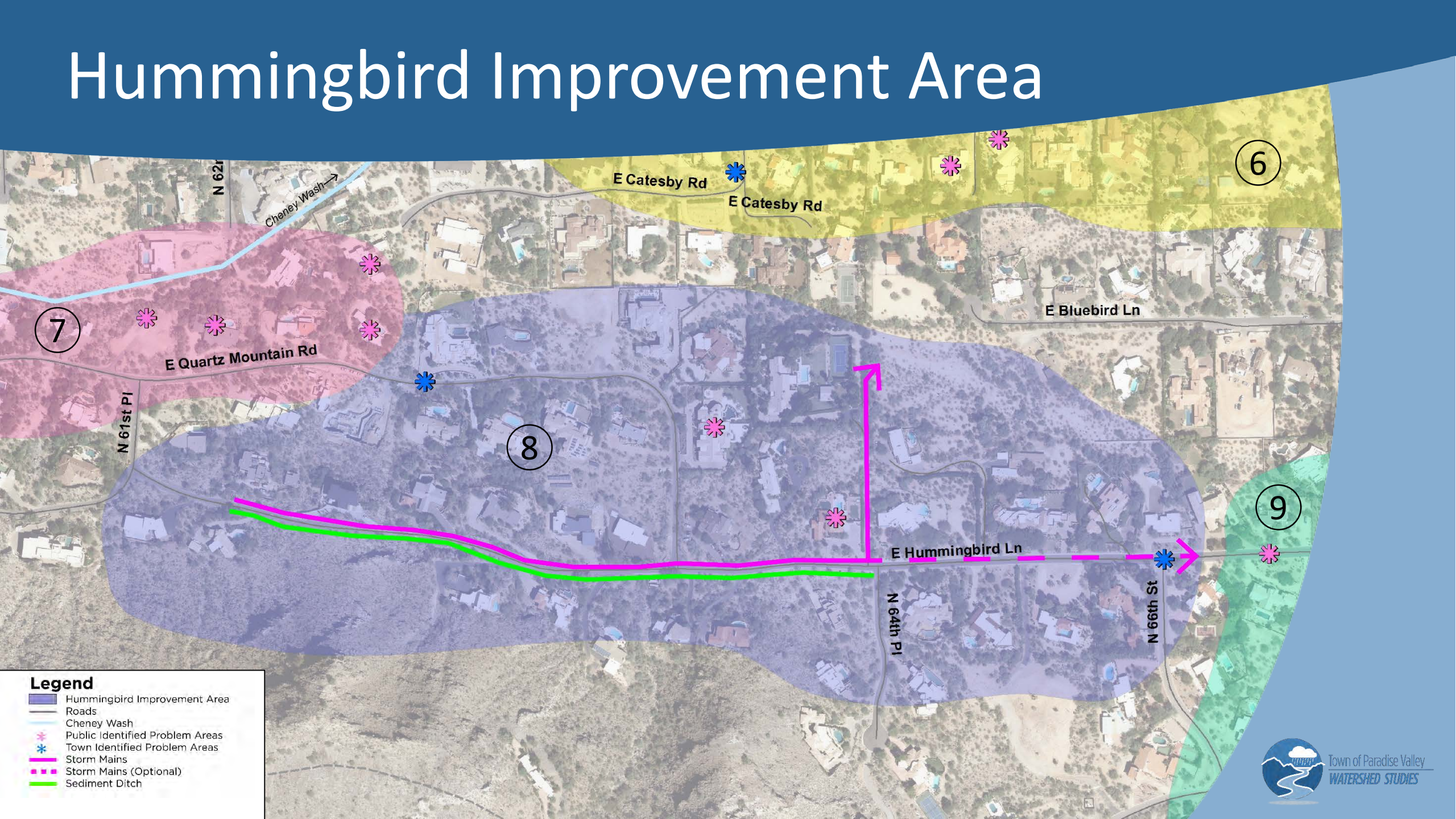
- Underground storm drain between Mockingbird Land and Scottsdale Plaza Resort (Approximately 1400 feet)
- Parallel surface channel improvements
- Collection inlets on Mockingbird Lane
- Sediment capture basin to reduce road and yard debris
- Compliments FCDMC planned infrastructure
- **$$**

Mockingbird Improvement Area

Alternative Mockingbird #2

Pros	Cons
• Less costly • Improvements constructed on most floodprone properties • Little or no disruption to traffic corridors • Makes use of existing downstream capacity at Scottsdale Plaza Resort	• Less breadth of benefit area • Requires construction within yards • Requires new easements

Hummingbird Improvement Area



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Hummingbird Improvement Area

Important Characteristics

- Sediment & stormwater collection ditch along high side of E. Hummingbird Lane
- Underground storm drain and unnamed wash outfall (Approximately 2300 feet)
- Requires erosion protected outlet at existing wash
- Potential alternative outfall to Mockingbird 1 Alternative
- Potential benefit to 22 properties and street maintenance
- **$$$**

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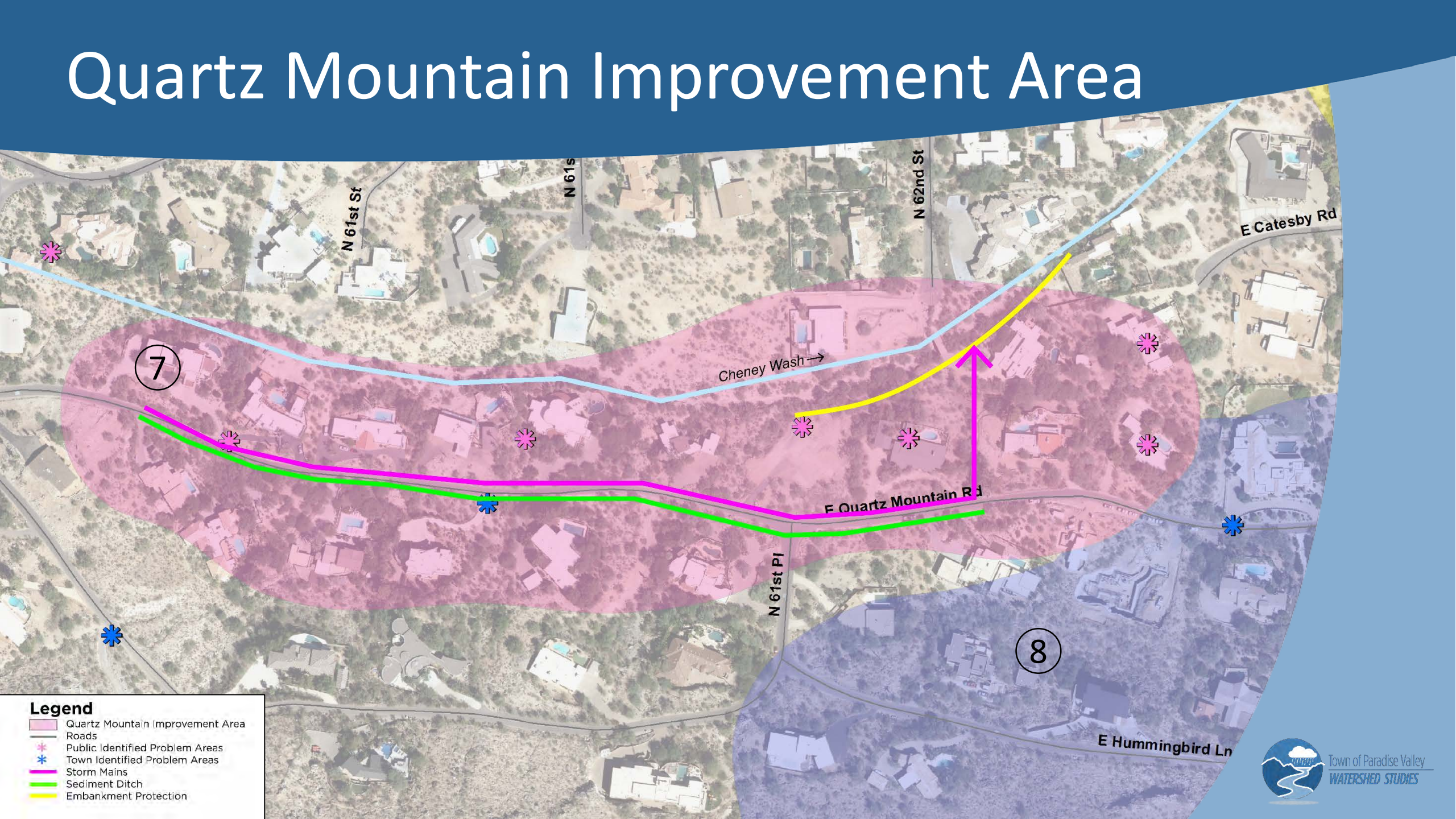
Quartz Mountain Improvement Area



Quartz Mountain Improvement Area

Important Characteristics

- Sediment & stormwater collection ditch along high side of E. Quartz Mountain Road
- Underground storm drain and Cheney Wash outfall (Approximately 1900 feet)
- Requires erosion protected outlet at existing wash
- Bank protection on Cheney Wash (Approximately 750’)
- Potential benefit to 11 properties and street maintenance
- **$$$**

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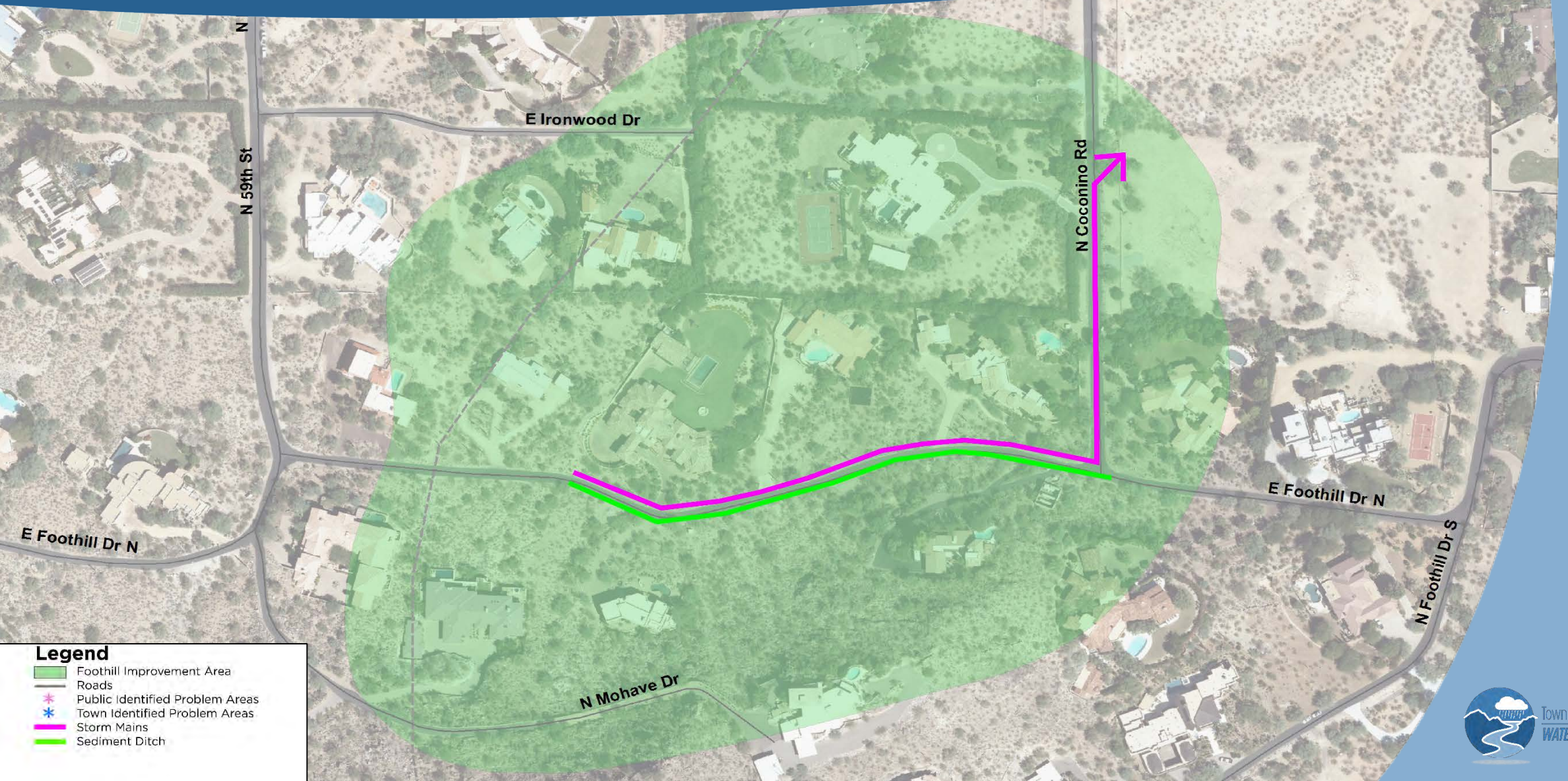
Foothill Improvement Area



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WATERSHED STUDIES

Foothill Improvement Area

Important Characteristics

- Sediment & stormwater collection ditch along high side of E. Foothills Drive N.
- Underground storm drain and unnamed wash outfall (Approximately 1500 feet)
- Requires erosion protected outlet at existing wash
- Potential benefit to 4 properties and street maintenance
- **$$**

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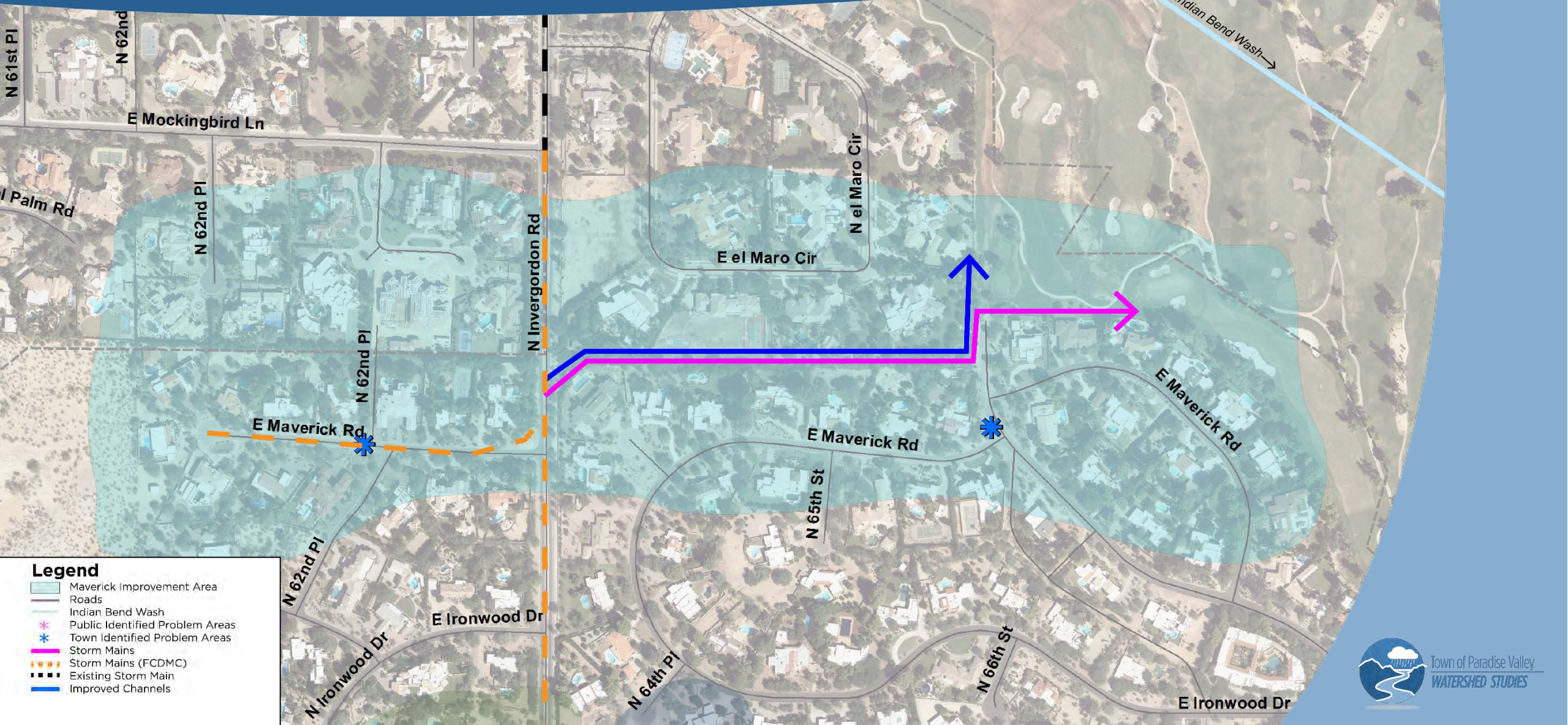
WATERSHED STUDIES

Maverick Improvement Area

Alternative Maverick #1



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Maverick Improvement Area

Alternative Maverick #1

Important Characteristics

- Underground storm drain between Invergordon Road and Indian Bend Wash (Approximately 2000 feet)
- Parallel surface channel improvements
- Collection inlets on Invergordon Road
- Compliments FCDMC planned infrastructure
- **$$$**

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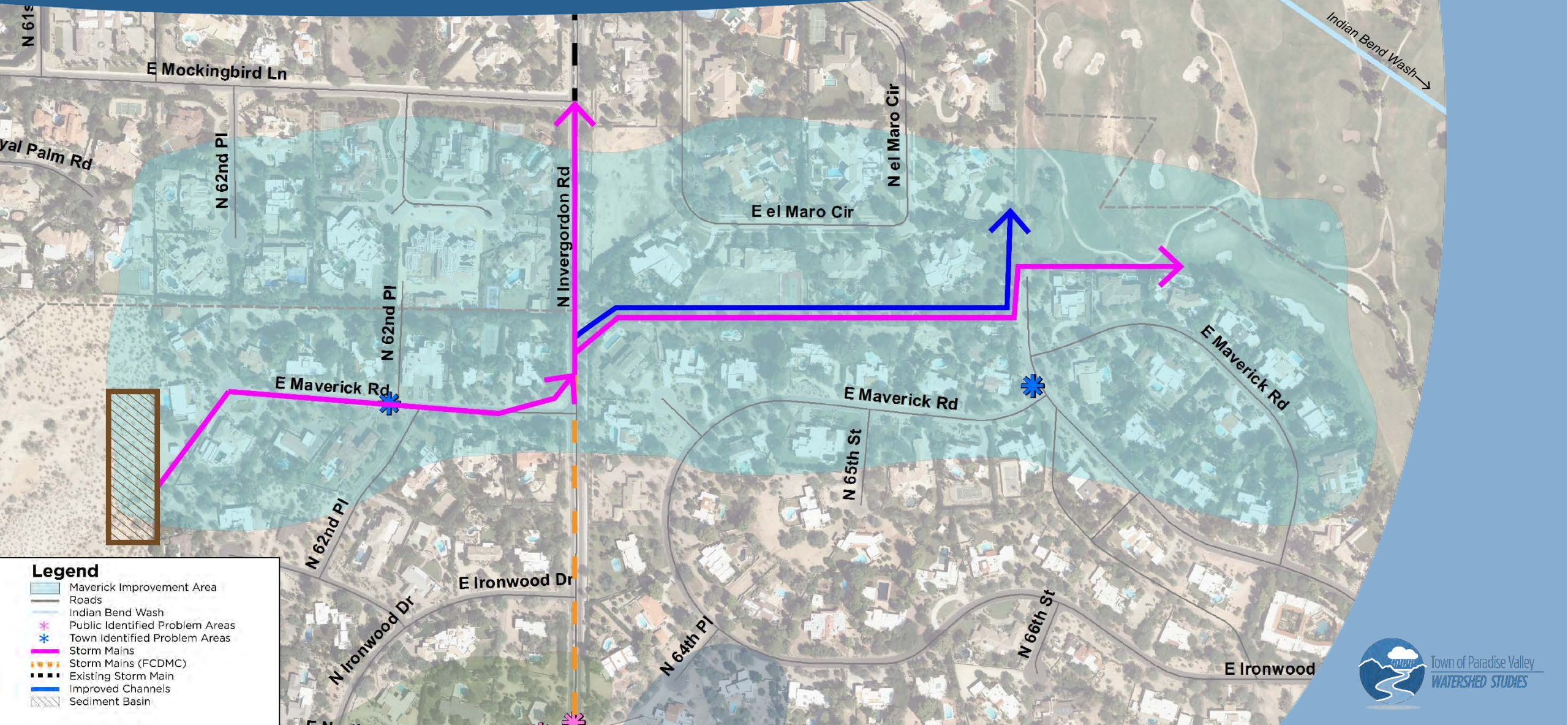
Alternative Maverick #1 Improvement Area

Pros	Cons
• Less costly • Improvements constructed on most floodprone properties • Little or no disruption to traffic corridors	• Less breadth of benefit area • Requires construction within yards • Requires new easements • More prone to sediment and debris

Maverick Improvement Area

Alternative Maverick #2



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Maverick Improvement Area

Alternative Maverick #2

Important Characteristics

- Includes Maverick 1 facilities
- Underground storm drain between Maverick Road and Invergordon Road existing storm drain (Approximately 2300’)
- Requires detailed analysis of existing storm drain
- Sediment capture basin to reduce road and yard debris
- Compliments and enlarges FCDMC planned infrastructure
- **$$$$**

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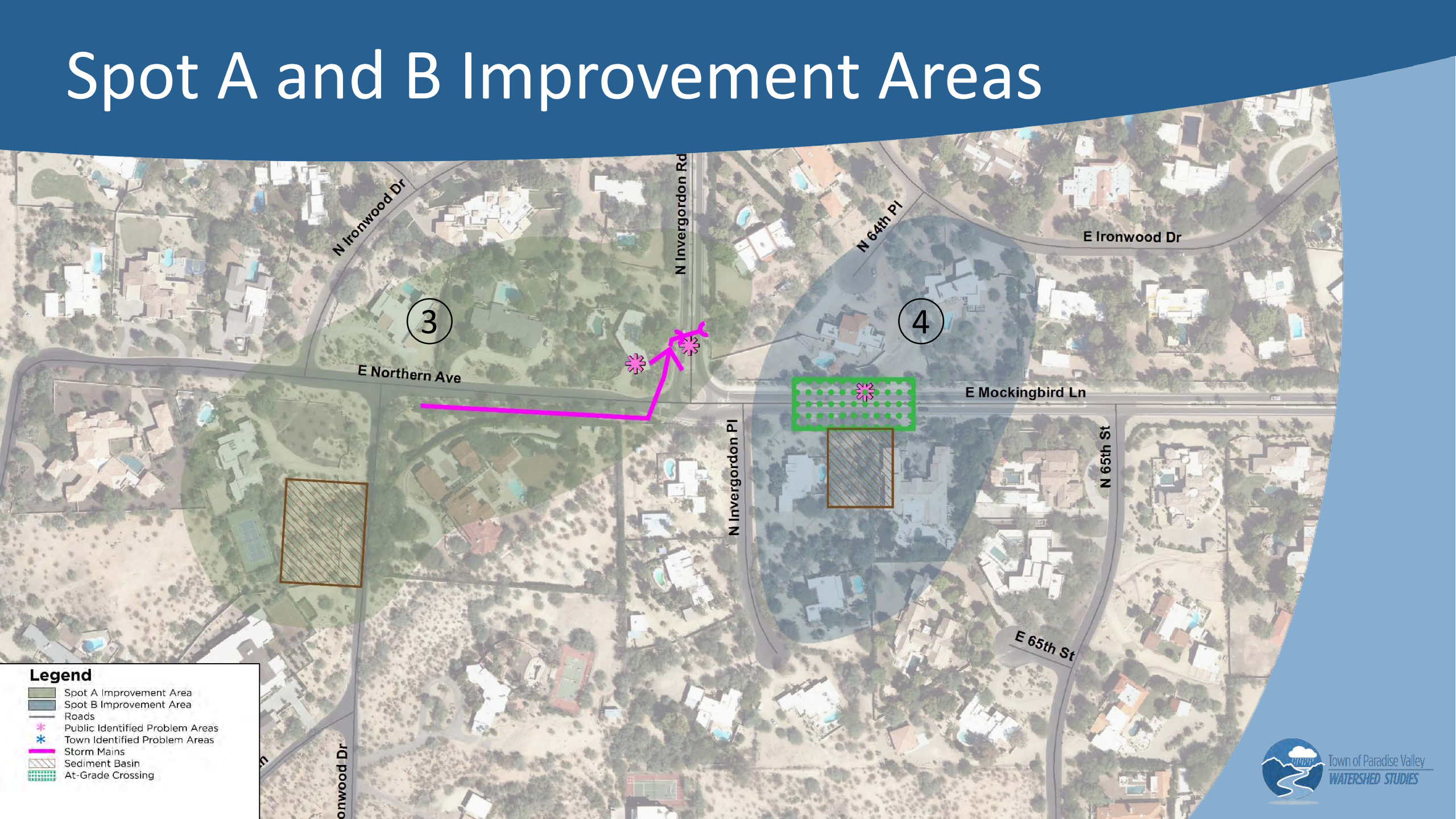
Alternative Maverick #2

Pros	Cons
• Larger breadth of benefit area • Makes use of existing infrastructure • Less prone to sediment and debris	• More costly • Requires construction within yards • Requires new easements • Potential for significant traffic disruption of N. Invergordan Road

Spot A and B Improvement Areas



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Spot A and B Improvement Area

Important Characteristics For Spot A

- Extend existing 2-barrel 30-inch diameter pipe culvert approximately 400’ to south of Mockingbird Lane
- Sediment capture basin to reduce road and yard debris
- Potential benefit to 2 properties and street maintenance
- **$**

Important Characteristics For Spot C

- Improve existing at-grade crossing to reduce the need for regular maintenance after storm events
- Sediment capture basin to reduce road and yard debris
- Potential benefit to 2 properties and street maintenance
- **$**

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Spot C Improvement Area

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Spot C Improvement Area

Important Characteristics

- Improve existing culvert to provide 100-year conveyance without breakout to private parcel east of Ironwood Drive
- Sediment capture basin to reduce road and yard debris
- Potential benefit to 2 properties
- **$**

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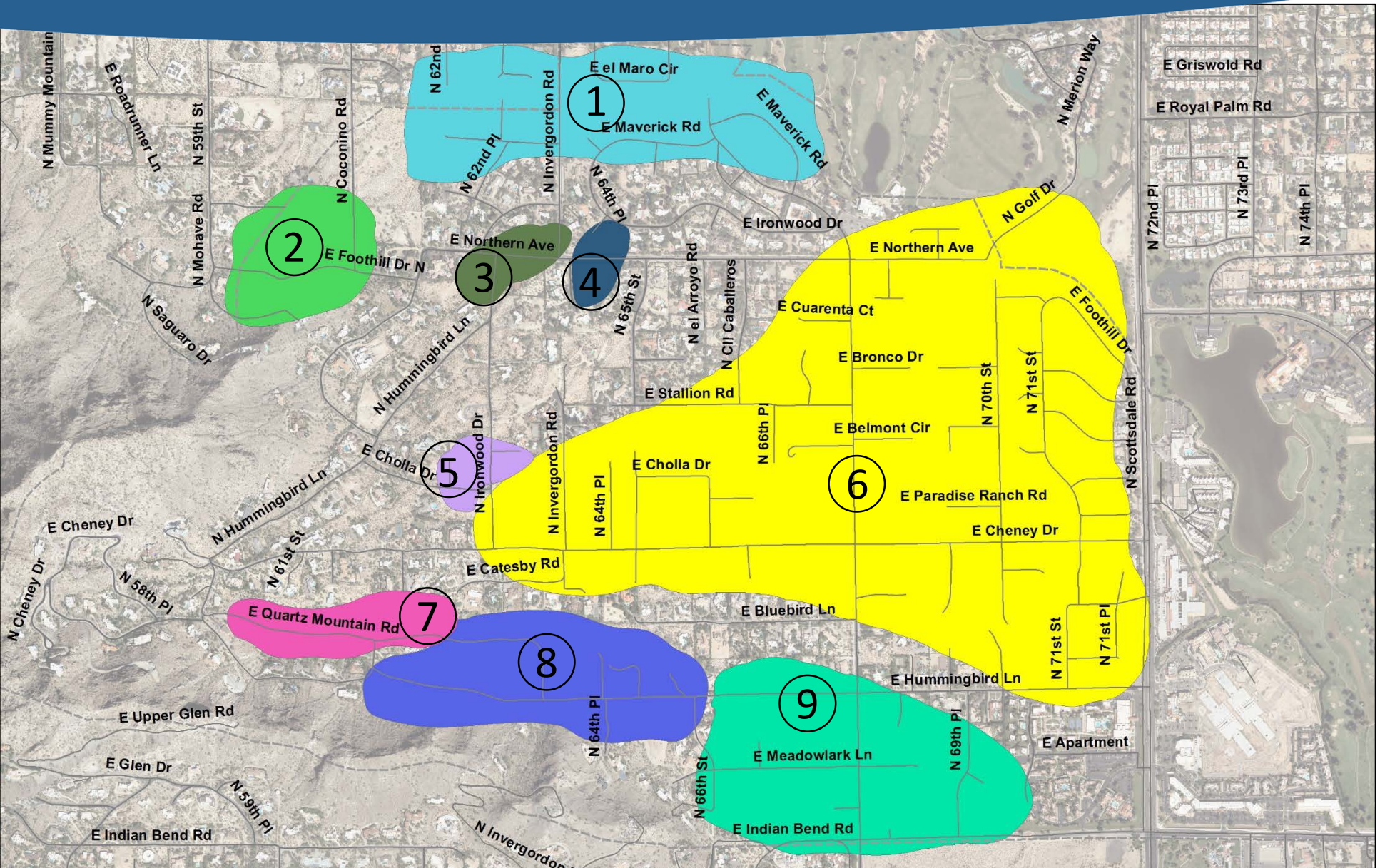
Please Provide Your Initial Impressions



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Quick Questions
and
Time to Visit the Stations

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Dibble Engineering
Michael Baker INTERNATIONAL