



Building a Resilient Fort Lauderdale: Developing Criteria for Road Elevation

ADVISORY SERVICES PANEL

FORT LAUDERDALE, FLORIDA

PRESENTATION TO THE FORT LAUDERDALE CITY COMMISSION

NOVEMBER 19, 2024

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- Dallas, Texas
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- El Paso, Texas
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- Houston, Texas
- Jersey Shore, New Jersey
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- Los Angeles, California
- Miami-Dade County, Florida
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- New Orleans, Louisiana
- New York, New York
- Norfolk, Virginia
- Northern Colorado, Colorado
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- San Diego, California
- Seattle, Washington
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- Tampa Bay, Florida
- Toa Baja, Puerto Rico



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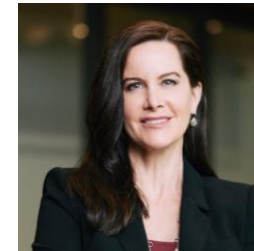
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Our Assignment

- Assess the impact of sea level rise on roadways
- Recommend criteria/policies to equitably guide selection of city roadways for elevation
- Guide how to balance road elevation requirements with investments in other city districts
- Discuss how the city can address roadway 'harmonization' and project funding



How Should the City Balance Needs Across the City?

Prioritize protecting people and addressing the greatest risk

- Coastal areas are experiencing sunny day flooding at regular high tides.
- Inland areas are at risk to surface flooding from rain events and are already experiencing these impacts.

180

tides exceeded the City's flooding threshold in 2023

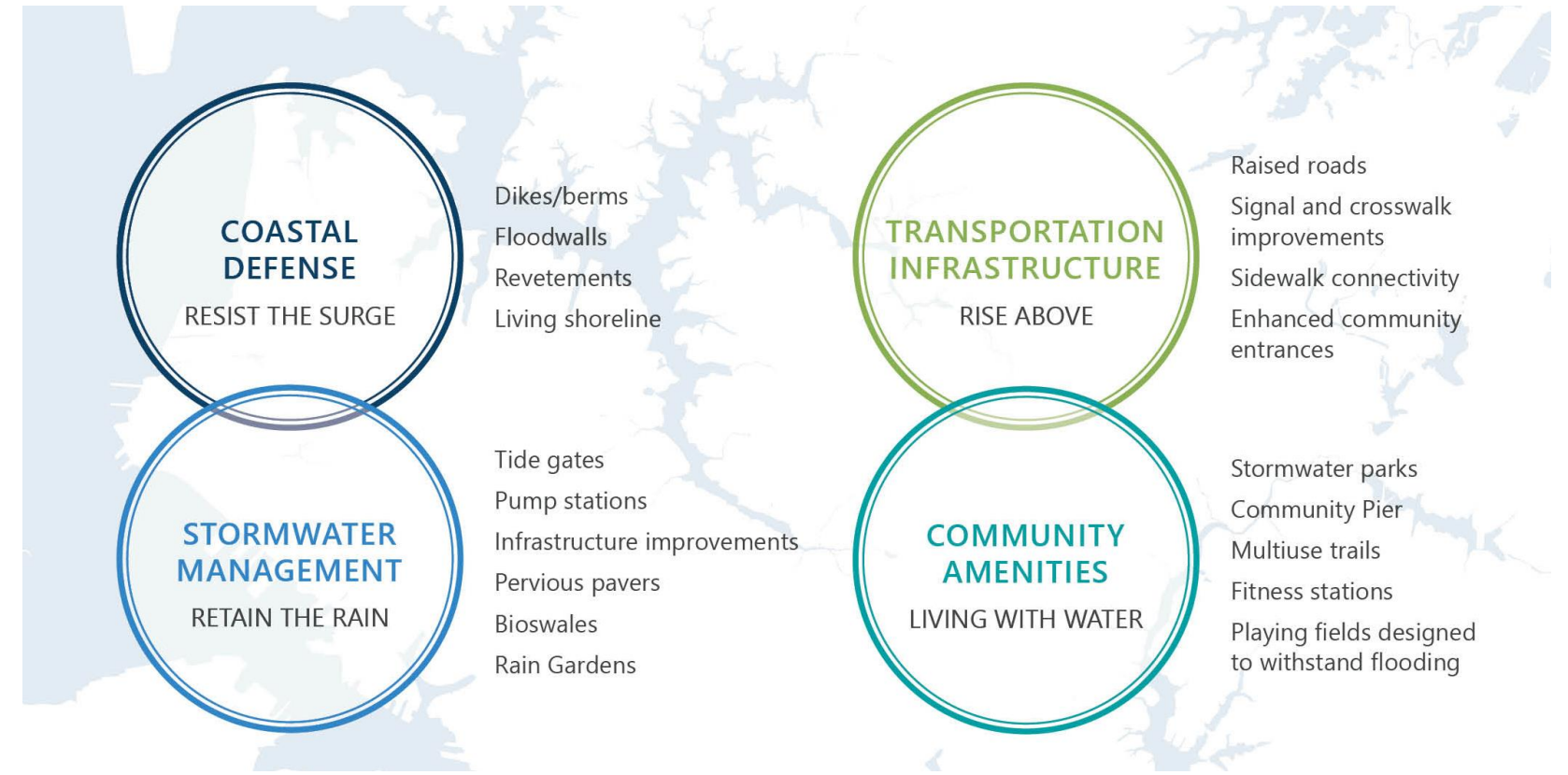
279+

homes experienced major damages in the Edgewood neighborhood during the April 2023 flooding event

Consider the Breadth of Adaptation Tools Available

Adaptation Toolbox: One tool alone will not solve or address the City's flood risk challenges

- Site/building level
- Street level
- Neighborhood level
- City level



Toolbox example: City of Norfolk, Virginia

Guiding Principles

If road elevation is a potential solution, the following principles guide criteria for road selection and prioritization:

- **Public safety is the top priority.** Emergency routes and critical connections to essential facilities are necessary to maintain access
- **Stormwater improvements are essential.** Drainage improvements maintain passable conditions on roadways, ensure regulatory compliance, environmental protection, and aesthetic benefits
- **Utilities should be protected.** Utilities provide continuity of service for water, sewer, power, natural gas, and communications

Roadway Types

Inventory all city-owned roadways and determine their classification:

- **Critical:** Evacuation Routes and Critical Roadways: Evacuation routes provide egress away from an area that contains an imminent threat or hazard. Critical roadways provide access to critical facilities (hospitals, fire/police) and remain accessible for post-flooding access to critical services. **High priority for road elevation if the road is at risk.**
- **Collector:** Commercial Corridors/Commuter Streets: Streets connecting multiple neighborhoods and supporting essential economic development activities. **Moderate priority for road elevation if the road is at risk.**
- **Local:** Neighborhood Residential Roadways: Roadways within neighborhoods, primarily providing access to residential properties.

Criteria for Road Elevation – High Importance

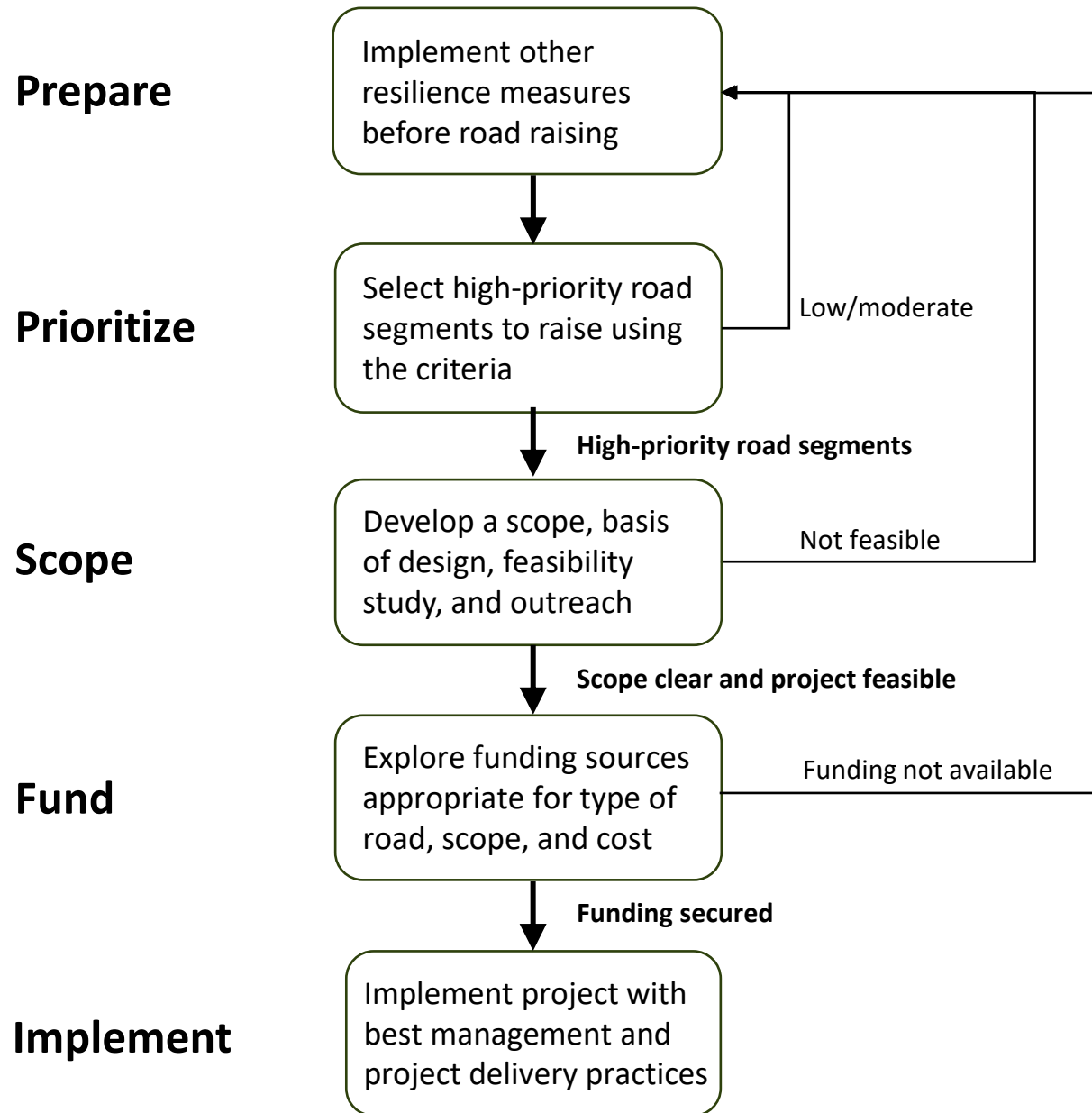
- **Is the roadway an evacuation route, critical connector, or serve essential public facilities?**
Public health, safety, and welfare are of paramount importance to community safety during hazard events and everyday emergencies. **High Importance.**
- **Is the road within the 100-year floodplain?**
These areas are susceptible to higher flooding now and in the future. **High Importance.**

Criteria for Road Elevation

Remaining criteria in no particular order

- **Have adjacent buildings been damaged by flooding?** This is a good predictor of whether flood damage will continue or accelerate if no action is taken.
- **Does the road experience frequent or intense flooding from king tides?** Such locations have a history of flooding and are likely points of future inundation.
- **Are bridges along the roadway below the 100-year floodplain?** Many bridges are old, low, or compromised and should be included in the consideration of roadway elevation.
- **Have other flood solutions been installed?** Road elevation is the solution of last resort. If other flood mitigation strategies have addressed flooding intensity or frequency, raising roads may not be a priority; if they have not yet been tried, they may be effective.
- **Are a large number of people served by the roadway?** More people living or working along or using a roadway to access other roads necessitates higher priority for elevation.
- **Does the roadway serve a disadvantaged community?** Vulnerable populations may have fewer resources to address temporary displacement, interruptions to work, or the ability to work remotely.
- **Do the majority of adjacent property owners support road elevation?** Local acceptance of this solution is essential, and local resources may contribute to funding the solutions.
- **Can road elevation catalyze associated benefits?** A project may be able to leverage funding to provide bike lanes, beautification, sidewalks, or other benefits to the community.

Project Evaluation Process



Big Picture: Key Points to Attract Funding



Create a compelling message. Communicate the need



Develop strategic partnerships to leverage needed funds



Stick with it. It's a marathon, not a sprint!

Establish a Flood Resilience Policy

- A set of statements that everyone in the community can support and that the governing body adopts
- Use as a guide (North Star) to elevate community priorities and guide government decisions
- Require time and a deliberate process to create and adopt



Communications and Engagement

For flood resilience policy and programs

- Transparency and good government
 - Standing agenda item
 - Ongoing outreach (planning and development, project-based outreach)
 - Community education, maps and resources
 - Media and messaging
 - Level-set expectations
 - Communicate progress
- Emergency management messaging
 - Vulnerable to roadway flooding
 - Socially vulnerable communities
 - Life supporting facilities and services
- Campaigns
 - Celebrate successes
 - Initiatives for funding, enforcement, and development
 - Consistent messaging and language
 - Dedicated resources for communications





Q&A

Thank You!



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in Fort Lauderdale



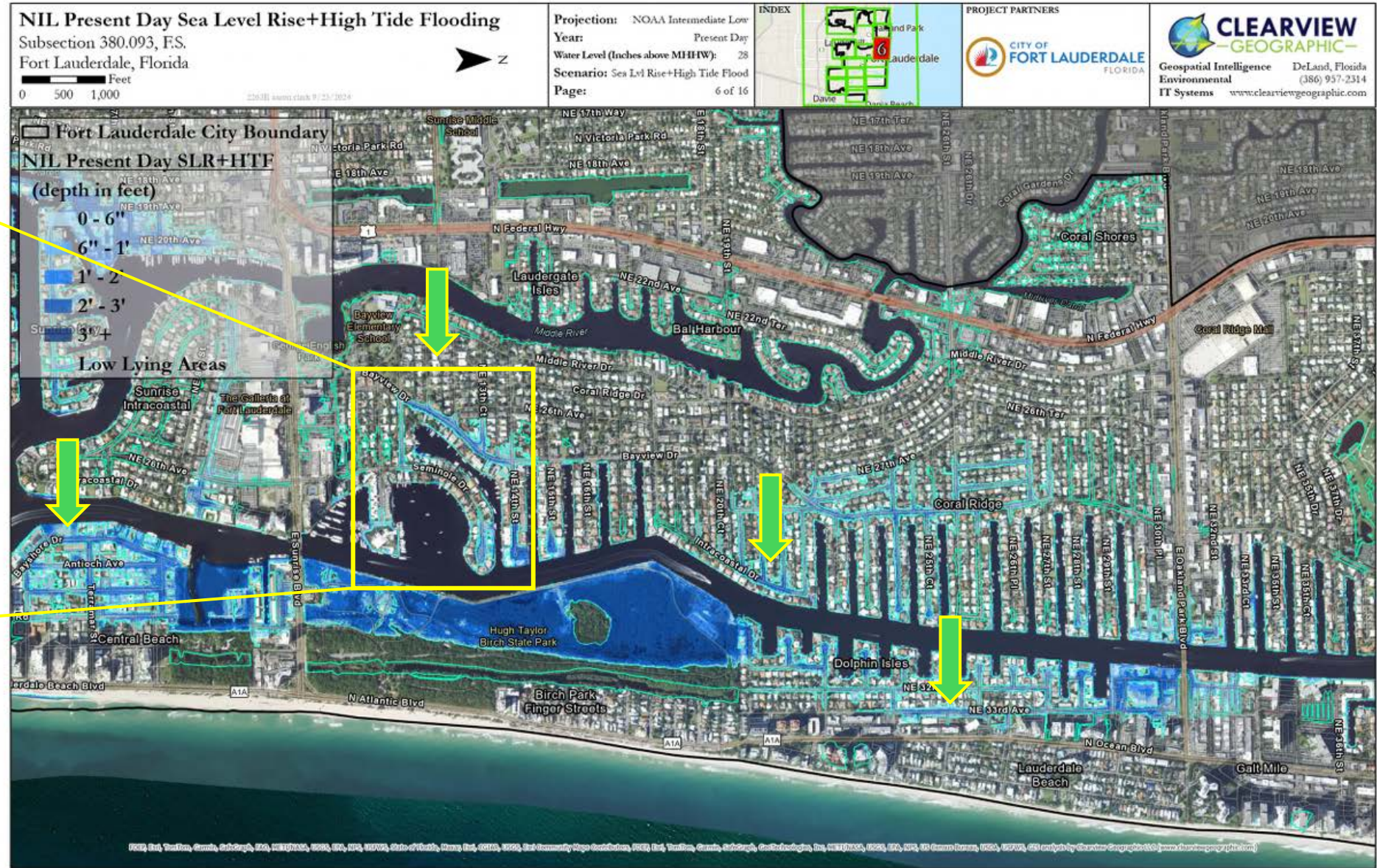
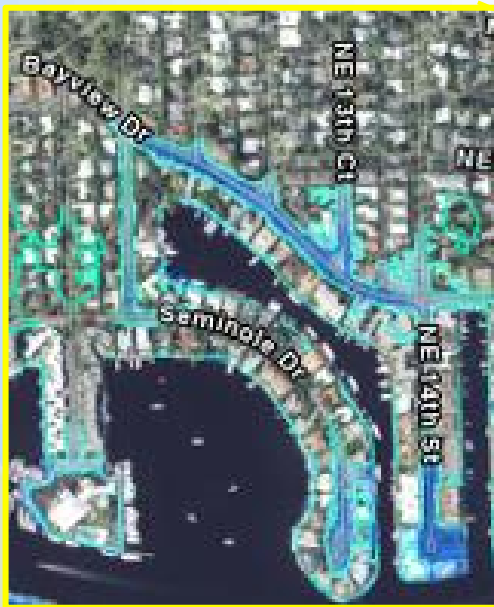
Road Elevation Criteria Next Steps

Direction Requested: Use ULI Panel Criteria for Planning?

1. **Road Type:** Is the roadway an evacuation route, critical connector, or serve essential public facilities? (High Importance)
2. **Flood Vulnerable Roadway:** Is the road within the 100-year floodplain? (High Importance)
3. **Upland Property Flooding:** Have adjacent buildings been damaged by flooding?
4. **Vulnerable to Tidal Flooding:** Does the road experience frequent or intense flooding from king tides?
5. **Flood Vulnerable Bridge:** Are bridges along the roadway below the 100-year floodplain?
6. **Stormwater Improvements:** Have other flood solutions been installed?
7. **Traffic Volume:** Are a large number of people served by the roadway?
8. **Socially Vulnerable Community:** Does the roadway serve a disadvantaged community?
9. **Stakeholder Support:** Do the majority of adjacent property owners support road elevation?
10. **Associated Benefits:** Can road elevation catalyze associated benefits?
11. **Road Elevation Liability: Will road elevation worsen flooding on adjacent properties? (Staff addition)**
12. **Project Feasibility: Is road elevation technically/financially feasible? (Staff addition)**

2024 Vulnerability Assessment: Roadways

Identifies Roadway Segments Impacted under Different Climate Scenarios



Next Step

Request FY26 Funding for a Road Elevation Master Plan

Master Plan Elements

- a) Review recently completed Vulnerability Assessment
- b) Assigning a weighting factor to each criteria
- c) Prioritize roadways based on ULI criteria and Project Evaluation Process
- d) Look for synergies for existing capital improvements
- e) Create cost estimates for segments to elevate
 - a) City costs (General Fund, Utilities, Stormwater)
 - b) Harmonization costs borne by upland property owners
- f) Seek public input on road segments prioritized for elevation
- g) Review ULI funding ideas and recommend funding options

Project Evaluation Process

