

# South Florida Resilient Redesign

**Dense Urban Community**  
South Beach  
Miami Beach, Florida



Kingdom of the Netherlands



MIAMI CENTER FOR ARCHITECTURE & DESIGN



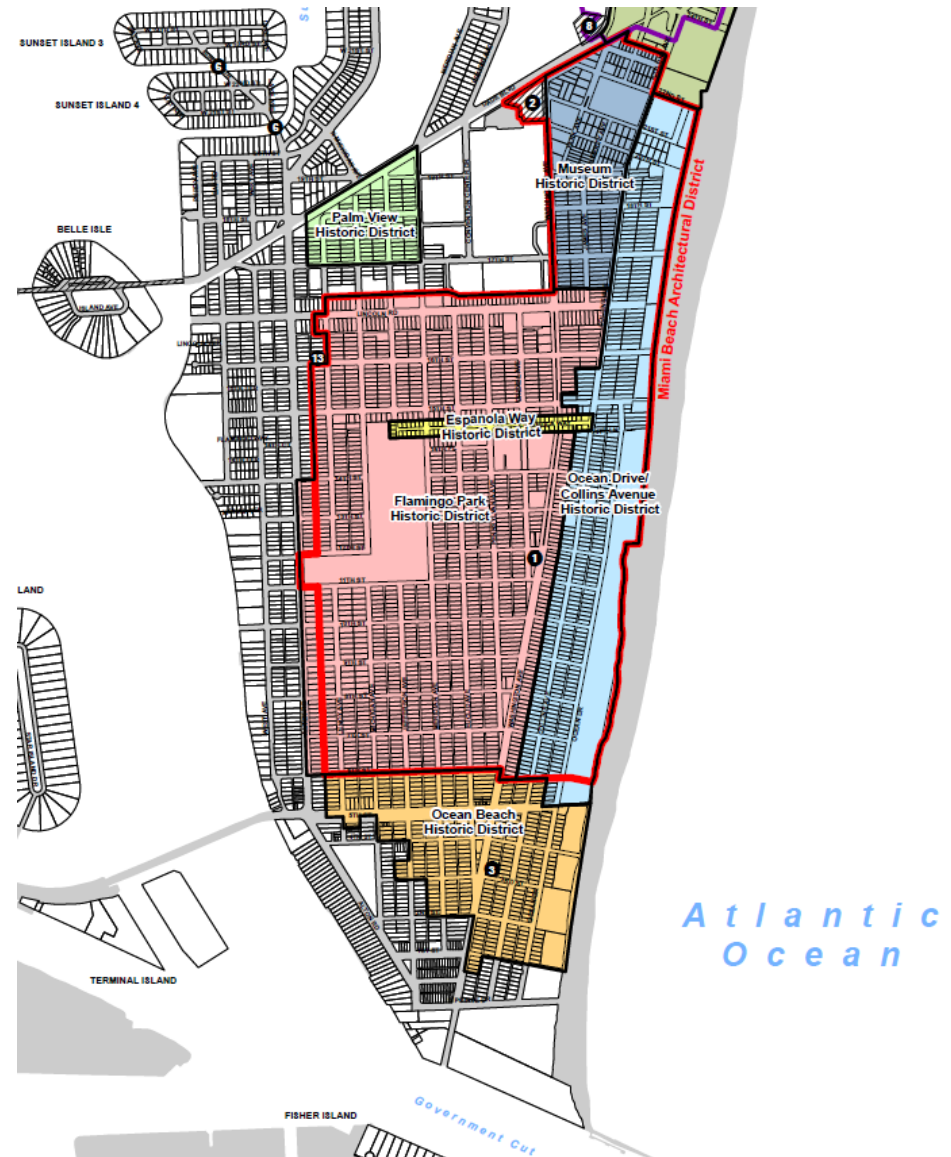
**AIA** Miami  
A Chapter of The American Institute of Architects

# Project Team

- Project Team (in alphabetical order):
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- Reinaldo Borges, Borges and Associates Architects
- Dominic Dusseau, Miami-Dade County
- Ramiro Diaz, Waggonner and Ball
- Piet Dircke, Arcadis
- Eugene Egemba, City of Miami Beach
- Jason King, Dover, Kohl and Partners
- Rogelio Madan, City of Miami Beach
- Dale Morris, Royal Netherlands Embassy
- Bruce Mowry, City of Miami Beach
- Marilys Nepomechie, Florida International University
- Wayne Pathman, Pathman Lewis LLP
- Nancy Schneider, Institute for Sustainable Communities
- Michael Sukop, Florida International University
- Margarita Wells, City of Miami Beach
- Elizabeth Wheaton, City of Miami Beach
- 
- *Special thanks to the Royal Netherlands Embassy*

## Site Overview

- 85,000 residents in Miami Beach
- South Beach is 2.5 square miles of high-density urban land in Miami Beach
- Representative of:
  - High-density urban with mixed uses;
  - High concentration of historic properties; and,
  - Low-lying area with sunny day flooding.
- Economics



# Community Characteristics

- Dune/Beach/Bay Ecosystems
- Historic Nature
- Walkability
- Land Use Diversity
- Views/Landscape – “The Water Connection”
- Population diversity





## Design Considerations

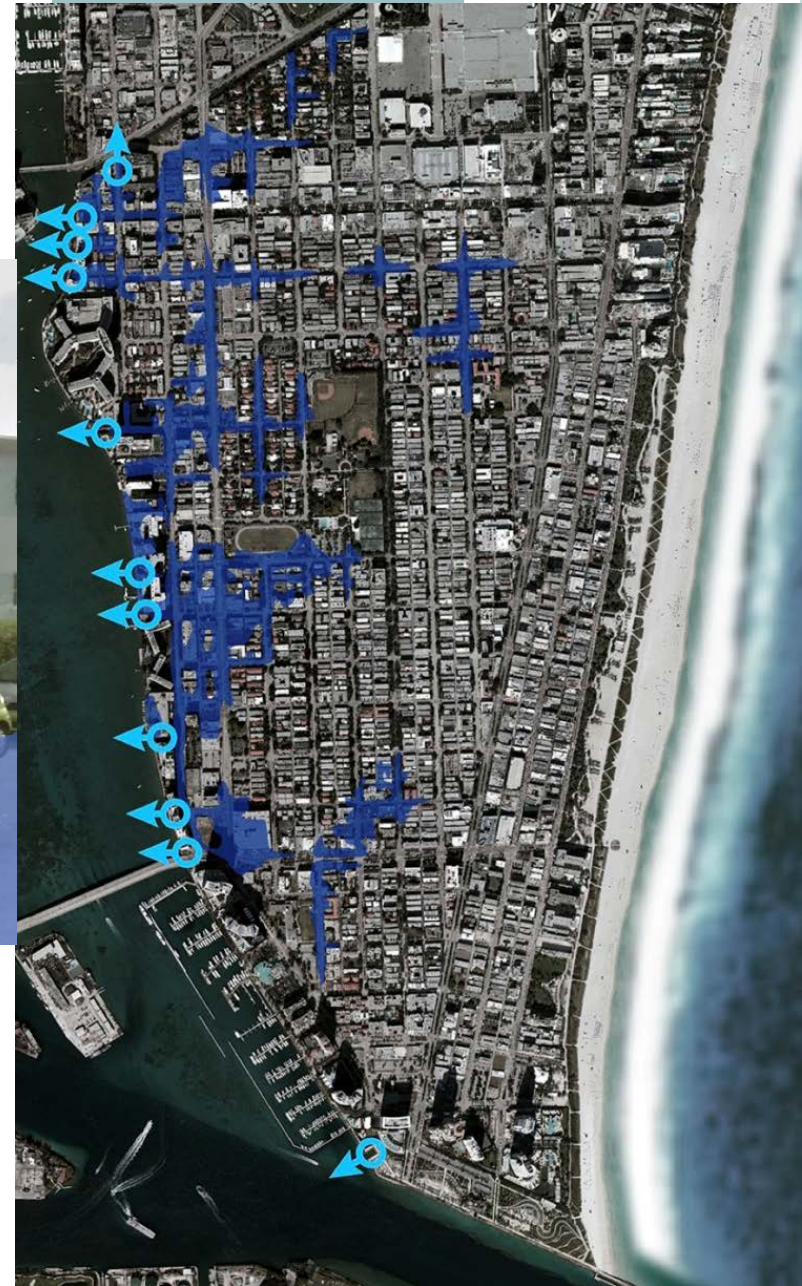
- **Flooding**
  1. Storm surge
  2. Rainfall (runoff)
  3. Tidal/Sea Level Rise
    - 2 feet by 2060
- **Soil porosity/permeability**
- **Politics**
- **Economics**  
(+ incentives)
- **Limited space**



## Sea Level Rise



Simulations showing tidal flooding at 2 feet of sea level rise.



## Design Considerations

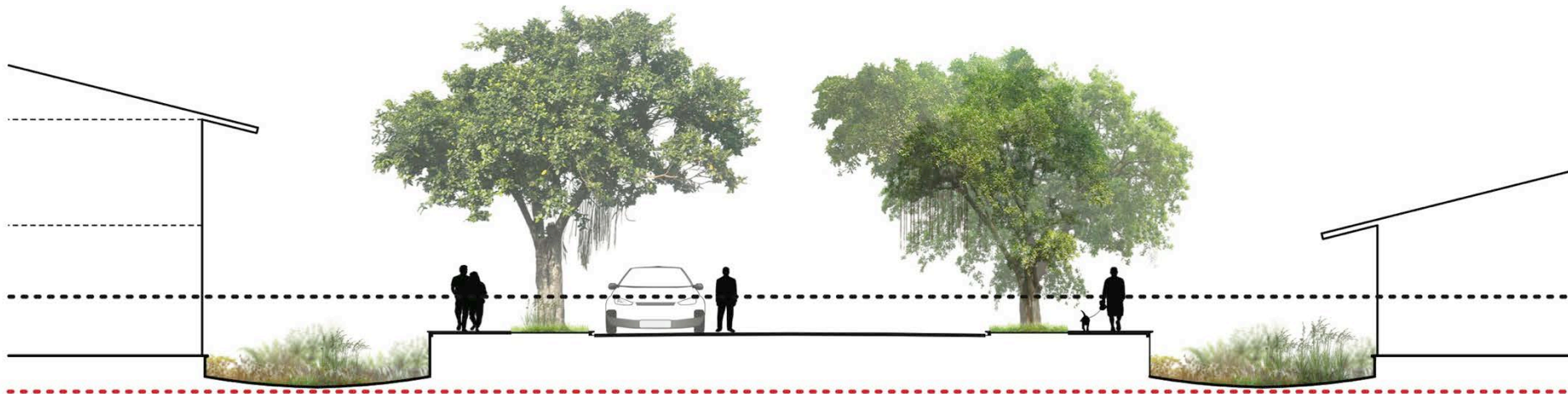
- Culture of car dependency
- Historic preservation
- **Aging/existing infrastructure**
- Greenspace
- Water quality
- **Storm surge exposure**
- Evacuation routes
- **Availability of space for water storage**
- Public Health Implications





# Design Concepts

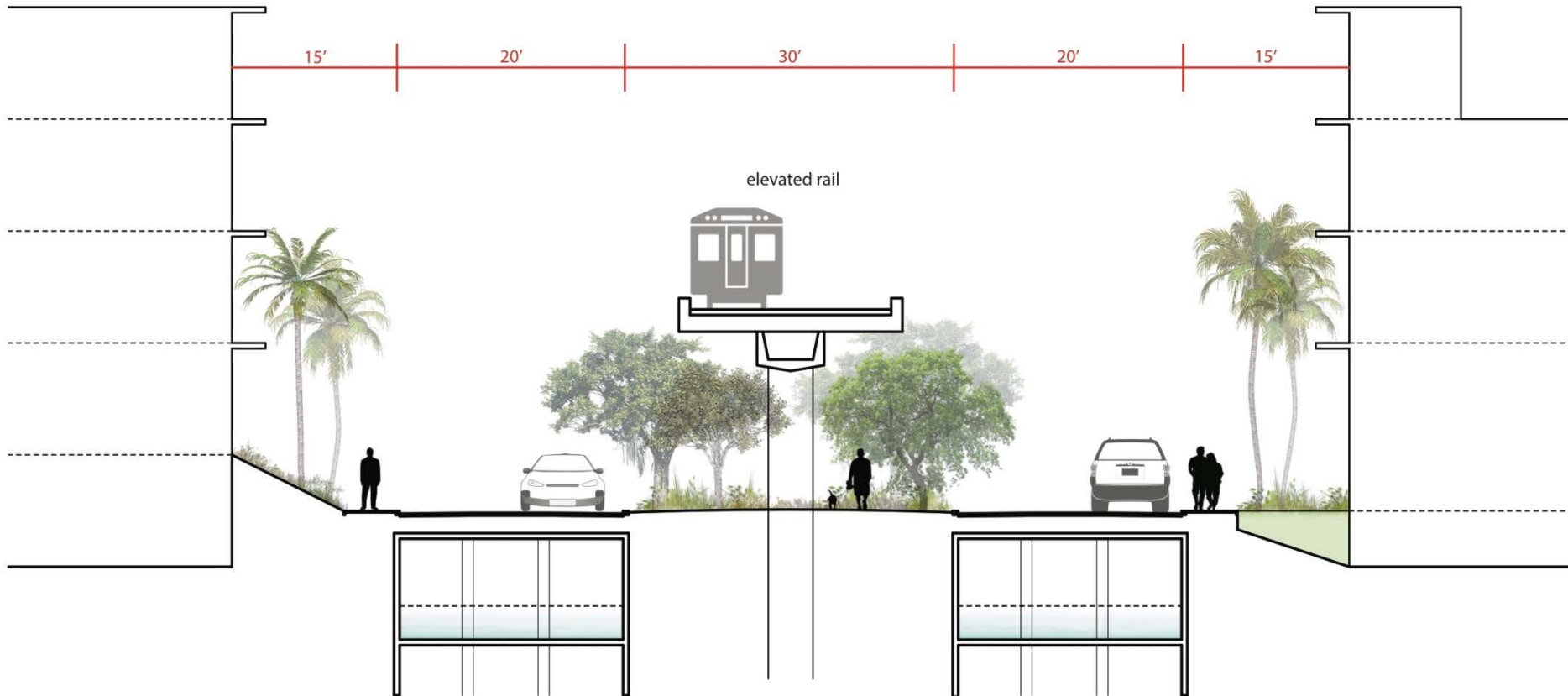
**Concept 1: Raised infrastructure with integrated transit, increased water storage options, and protective bayfront promenade**



**Elevated Residential Street Section**

# Design Concepts

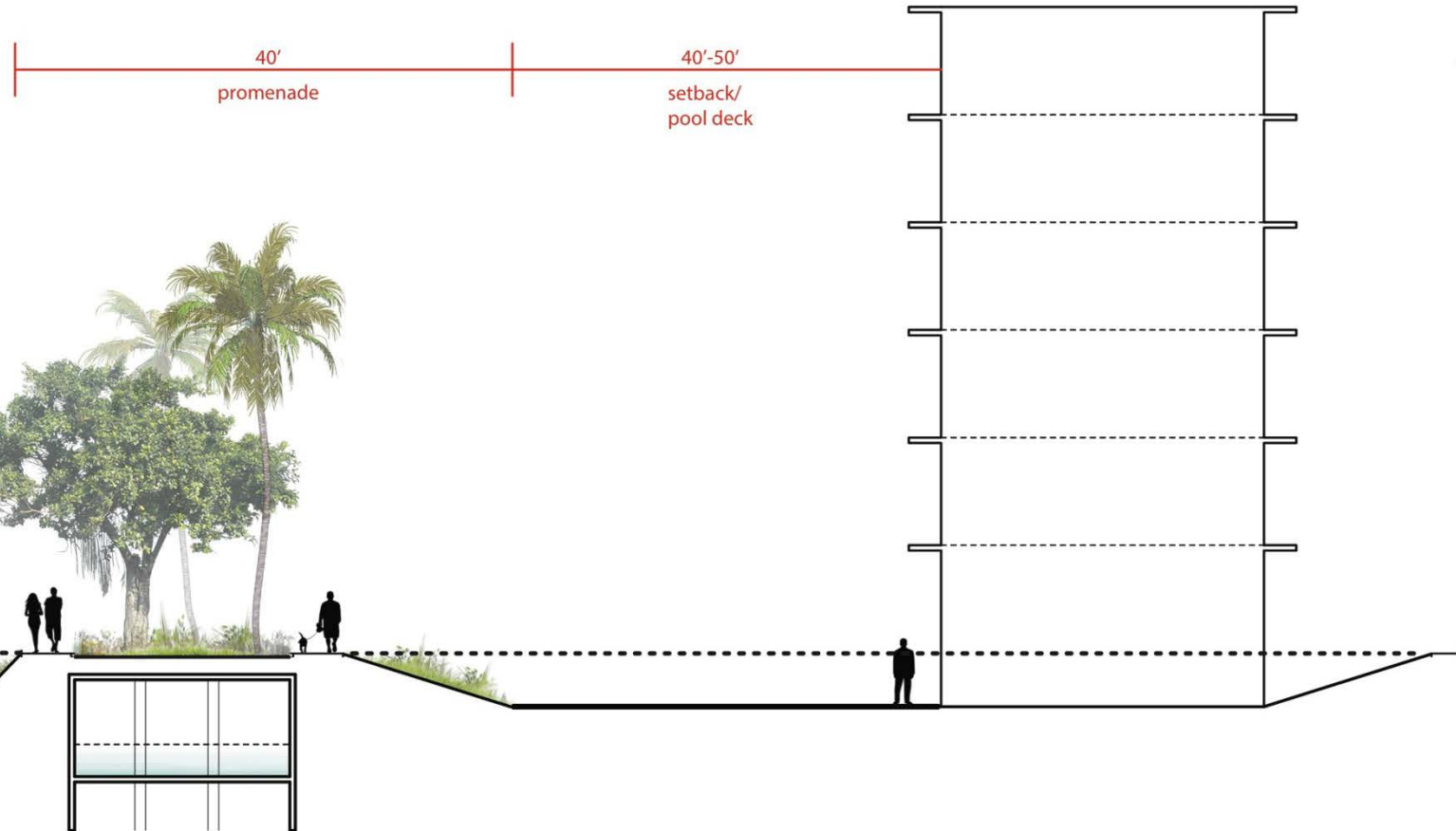
**Concept 1: Raised infrastructure with integrated transit, increased water storage options, and protective bayfront promenade**



**Adapted Street Section**

## Design Concepts

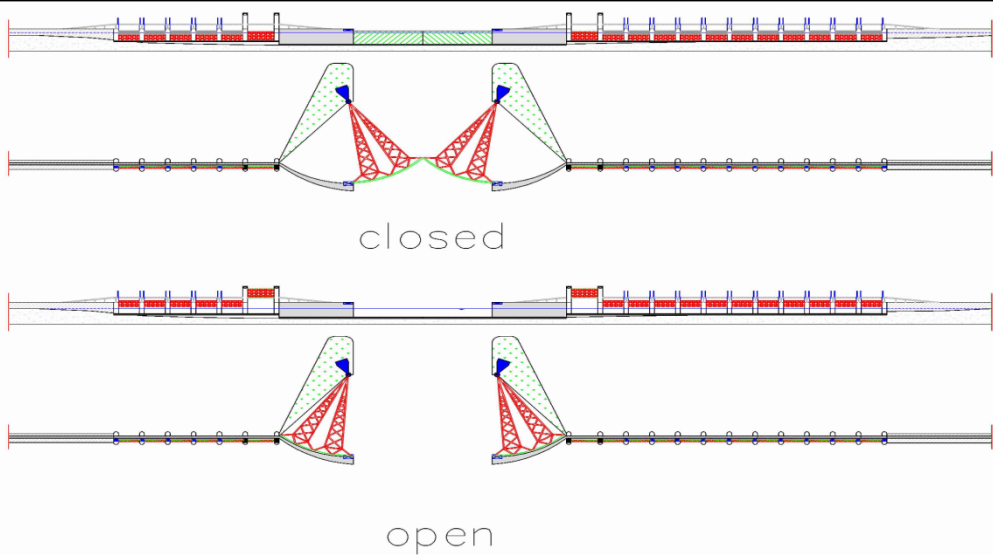
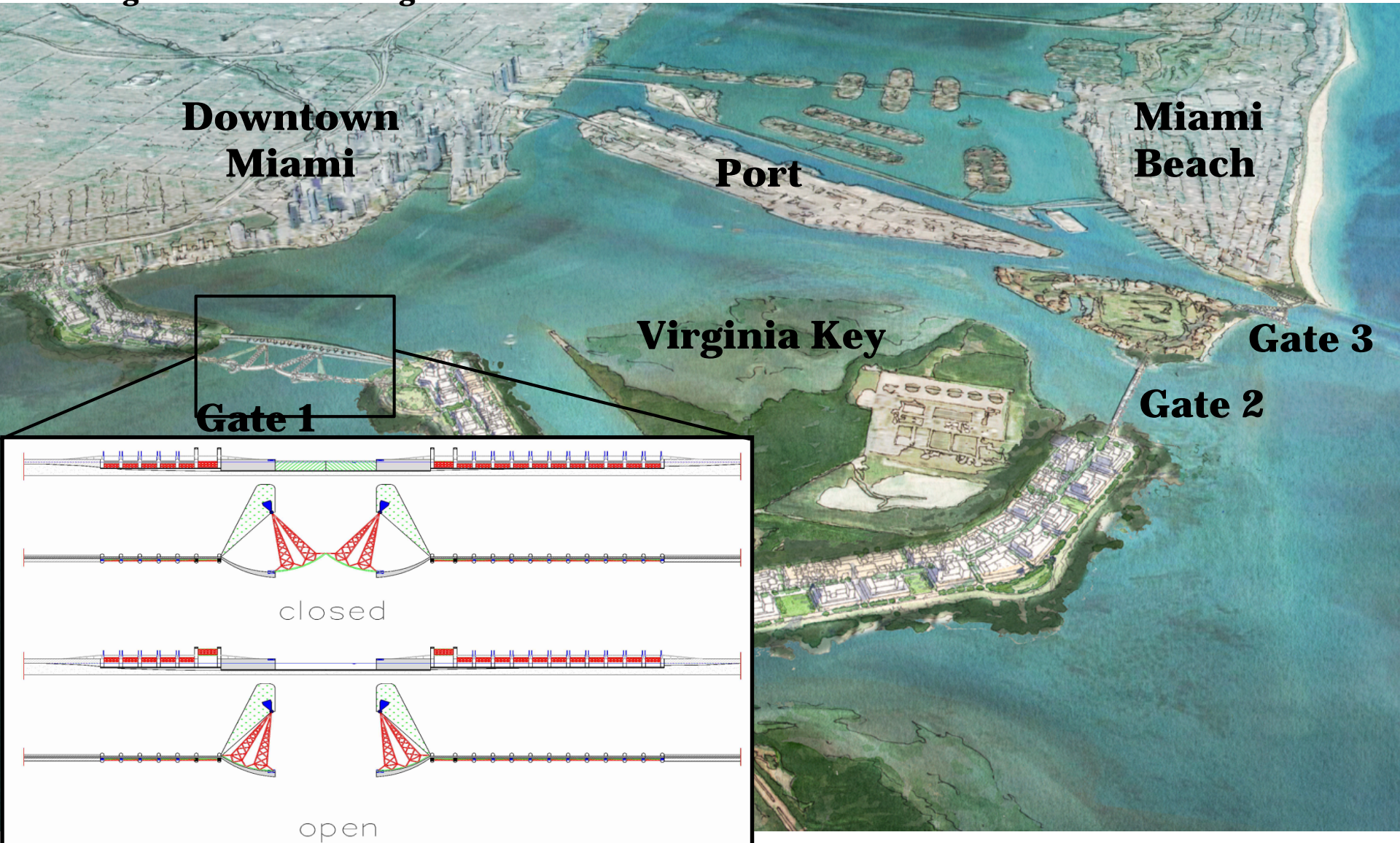
**Concept 1: Raised infrastructure with integrated transit, increased water storage options, and protective bayfront promenade**



**Bayfront Protective Promenade Section**

# Design Concepts

**Concept 2: Storm surge protection - Boulevard levee, flood control gates and storm surge barriers**



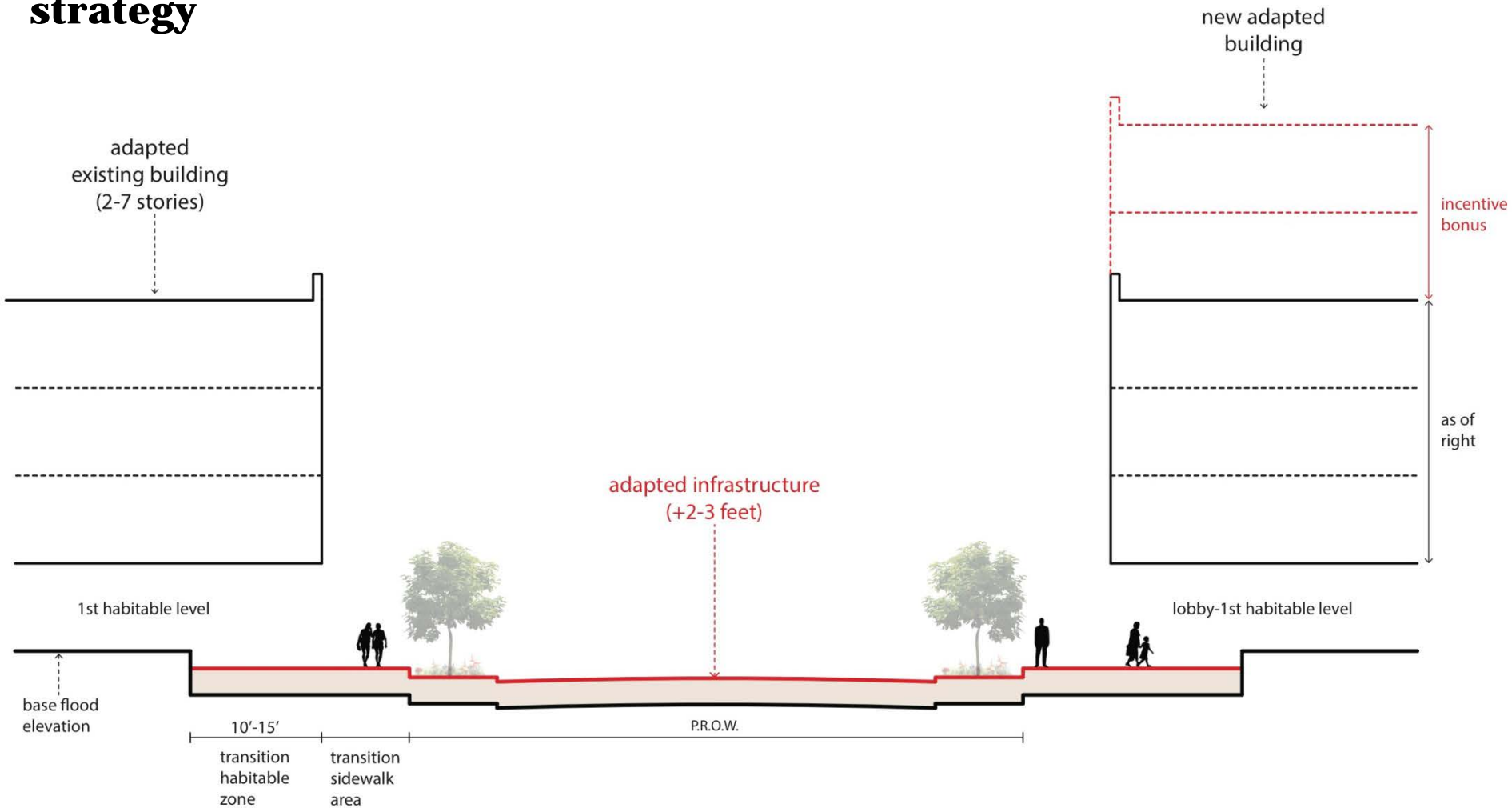
# Design Concepts

## **Concept 3: Resilient urbanization and land re-adjustment strategy**



# Design Concepts

## Concept 3: Resilient urbanization and land re-adjustment strategy



**Elevated and Higher Density Buildings Section**

# Additional Recommendations

- Develop historic building preservation plan
- Establish Adaptation Action Areas
- Create sustainability fund with developer incentives
- Establish tax and/or user fees for sustainable initiatives
  - Special tax districts



## Implementation

- **Continue existing initiatives**
  - Prescribed seawall height
  - Pump station design criteria
  - Raise base flood elevations
  - Swale reclamation program
  - Elevated electrical panels
- **Phase implementation of other short-term recommendations**
- **Research, further develop, and vet suggested long-term strategies**



Landscaping along Meridian Avenue  
Photo by OriginalGreen.org



## Next steps

- Work collaboratively with partners to find new and improved solutions
- Fill data gaps on the local environment
- Identify funding opportunities for resiliency projects
- Work with similar cities to implement recommendations across the region

