



BURNT STORE DRAINAGE STUDY

PUBLIC MEETING #3

Meeting Agenda

Review Project Status

Public Meeting Recaps

Model Results

- Existing Conditions
- Validation Model
- Build-Out Conditions
- Future Conditions

Conceptual Projects

- Level of Service
- Project Scoring

Findings & Recommendations

Project Status

Data Collection – Complete

Existing Condition Analysis - Complete

Future Condition Model - Complete

Alternatives Analysis - Complete

Benefit-Cost Analysis – Complete

Final Memorandum – Will Be Finalized by End of May

Recap from Public Meetings #1 & #2

Public Meeting #1
7/22/2025

- Preliminary Existing Conditions Model Results
- Concerns with nuisance seasonal rainfall

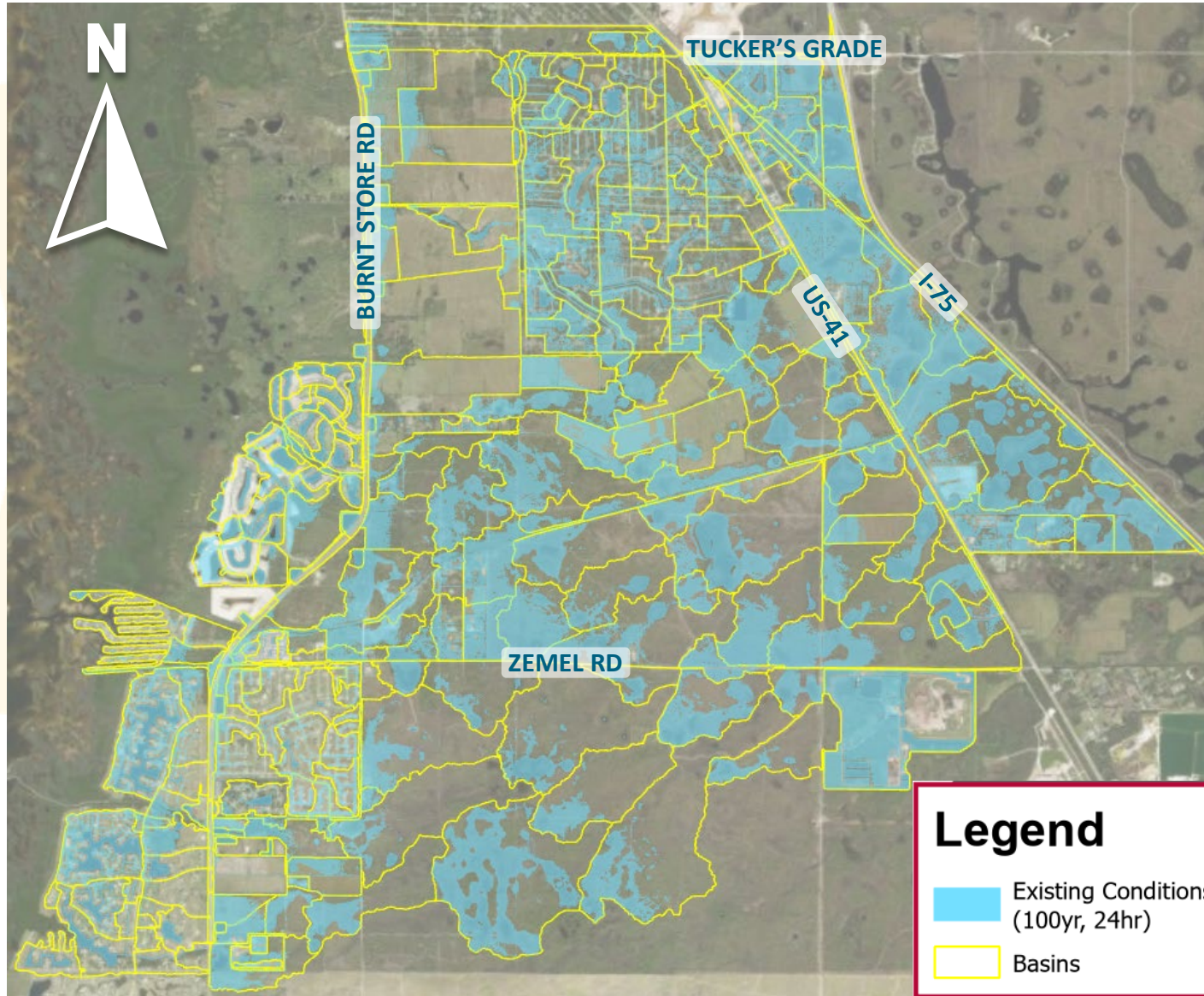
Public Meeting #2
9/23/2025

- Validation Model Results
- Validation event chosen from July 2025 based on feedback from Public Meeting #1

General Public
Comment/Concern

- Burnt Store Village Rim Ditch
- Future Development
- Large amounts of sheet/overland flow from East

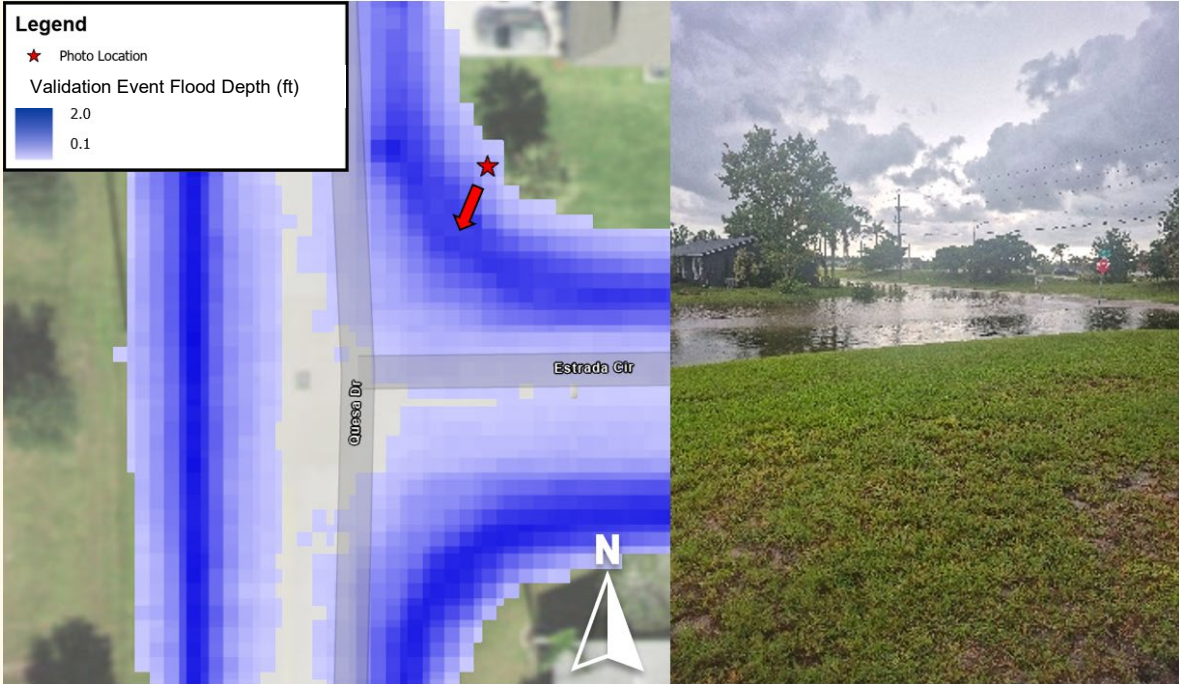
Existing Conditions Model Results



Legend

- Existing Conditions Floodplain (100yr, 24hr)
- Basins

Validation Model Results - Real Storm from July 2025



Existing Model Findings

- Approximate building elevations calculated based on DEM and survey of FFEs
 - Determined that existing buildings in study area were above the modeled 100-year, 24-hour storm elevation.
- Warning stages at Burnt Store Road set to minimum pavement elevation
- Local road flooding evaluated in validation storm
- Results are for Rainfall-Driven Storm with static tidal condition, NOT storm surge

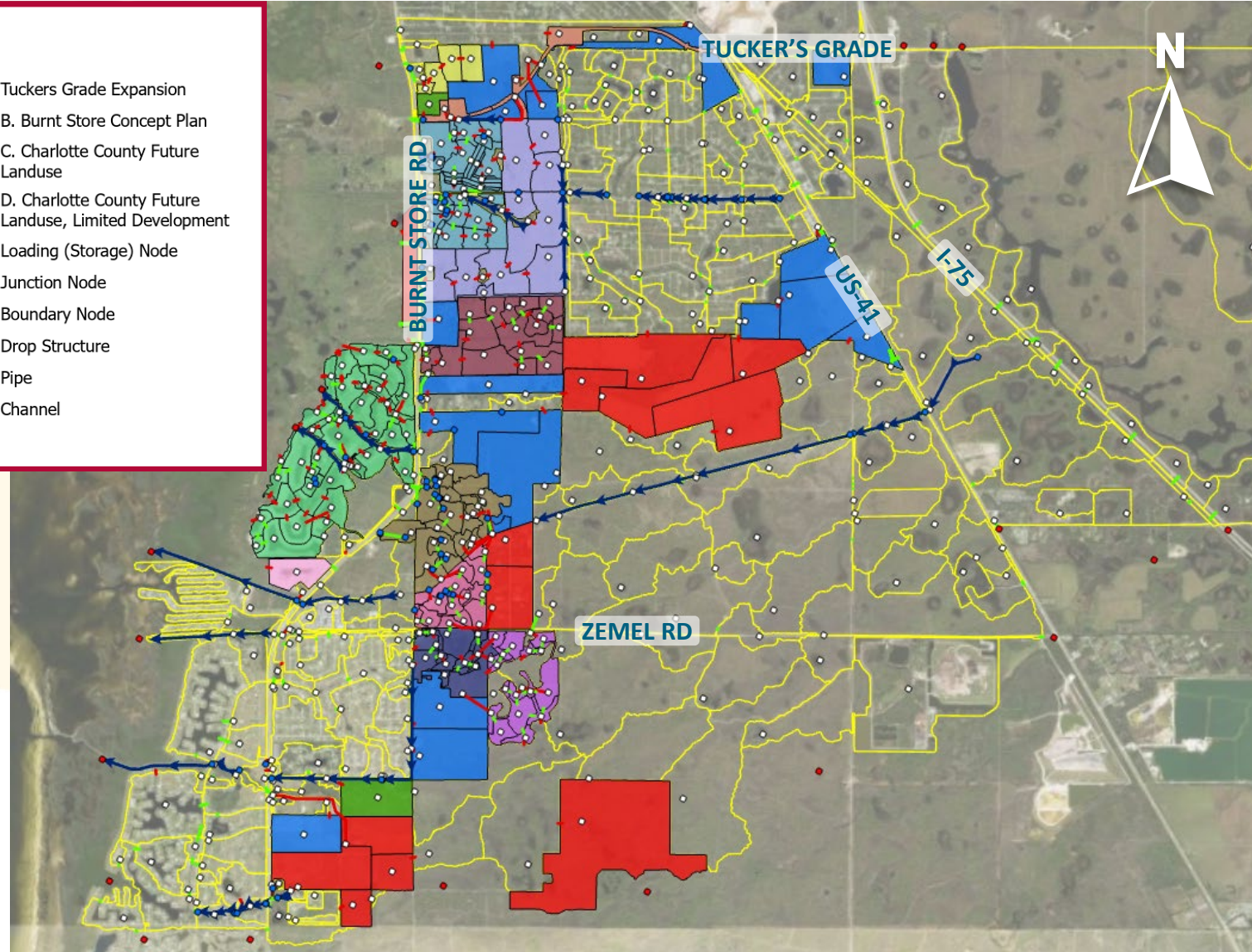
Buildout Conditions Model

Legend

Buildout Conditions Basins

- Existing
- Coral Lakes
- Crosswinds
- Firelight East
- Firelight
- Firelight North
- Firelight South
- Heritage Landing
- Heritage Station
- Starling
- Turnleaf

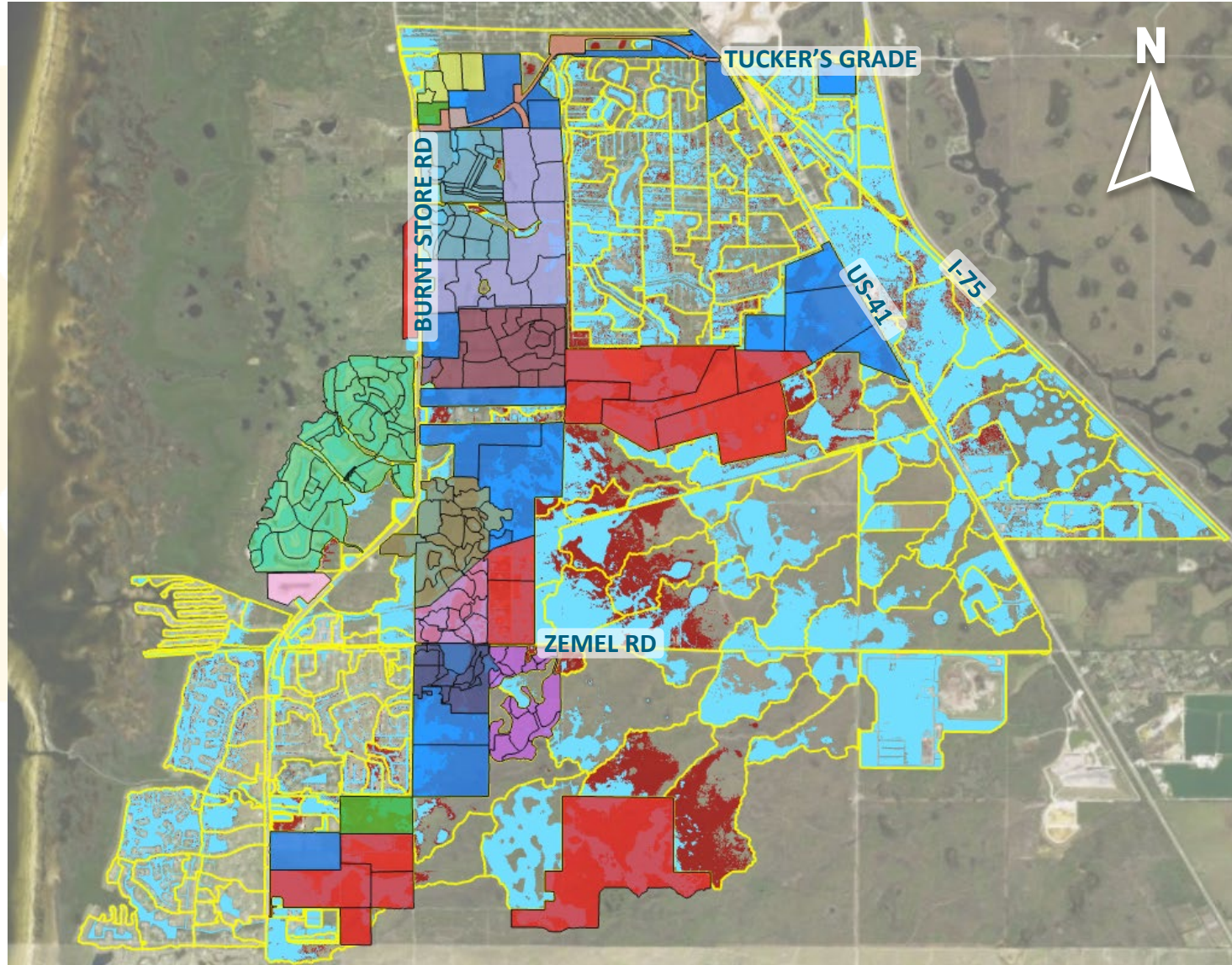
- Tuckers Grade Expansion
- B. Burnt Store Concept Plan
- C. Charlotte County Future Landuse
- D. Charlotte County Future Landuse, Limited Development
- Loading (Storage) Node
- Junction Node
- Boundary Node
- Drop Structure
- Pipe
- Channel



Buildout Conditions Model Results

Legend

- Existing Conditions Floodplain (100yr, 24hr)
- Buildout Conditions Floodplain (100yr, 24hr)
- Buildout Basins
 - Existing
 - Coral Lakes
 - Crosswinds
 - Firelight East
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Future Conditions Model

- Update to buildout conditions model with long-range planning model parameters
- Static Tailwater increased from 1.9' NAVD88 to 6.59' NAVD88
 - NOAA 2022 Sea Level Rise Technical Report (Planning year of 2100)
- Modeled 100yr rainfall increased from 11.3" to 17.29"
 - FIU Statewide Extreme Rainfall Projections Report
 - Planning period of 2069-2099

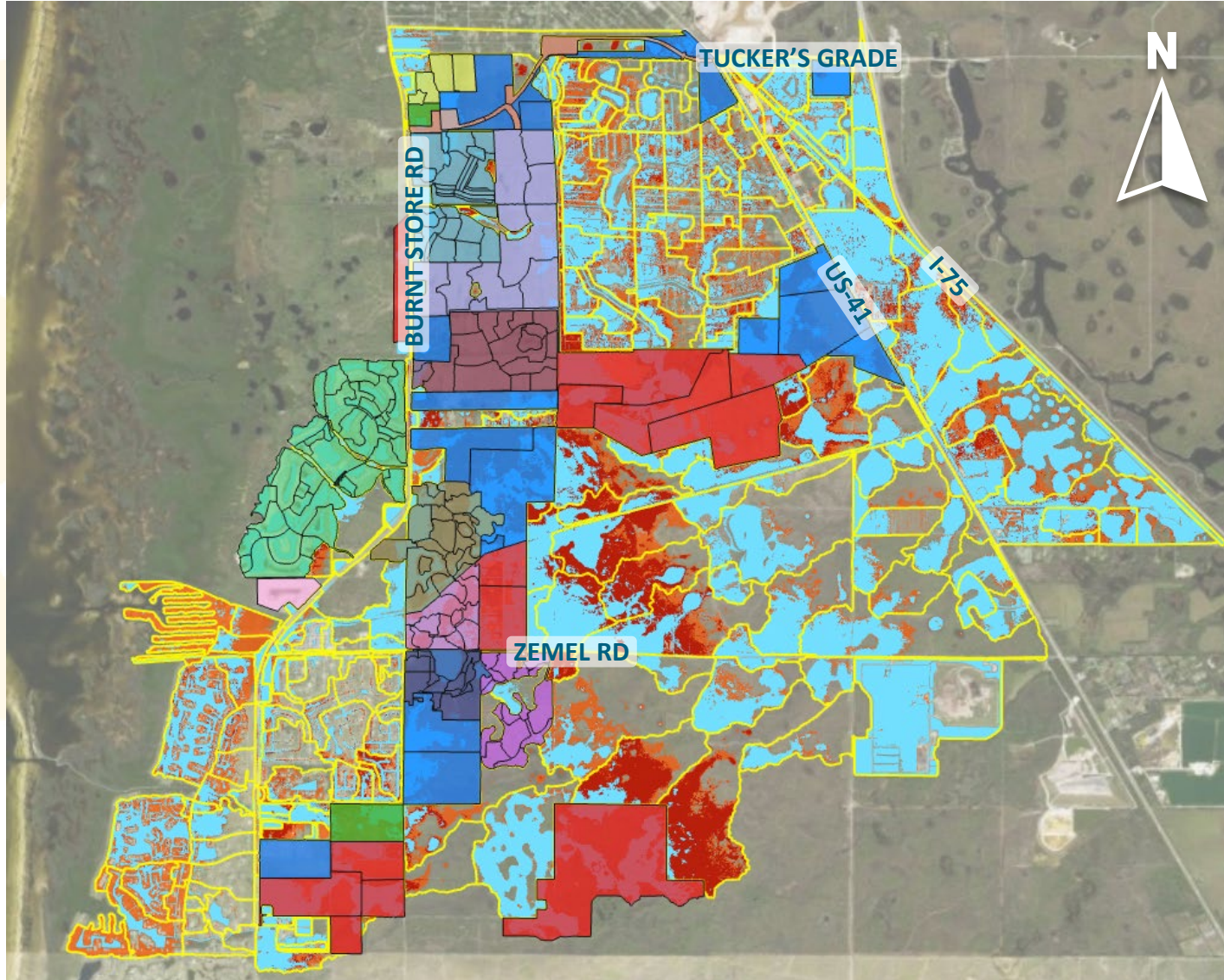
Findings from Future Conditions Model

Legend

- Existing Conditions Floodplain (100yr, 24hr)
- Buildout Conditions Floodplain (100yr, 24hr)
- Future Conditions Floodplain (100yr, 24hr)

Buildout Basins

- Existing
- Coral Lakes
- Crosswinds
- Firelight East
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Conceptual Projects

- Three conceptual projects were evaluated as part of this study
- Conceptual projects were selected based on
 - Future conditions model results
 - Validation model results
 - Input from County staff
 - Public meeting input
 - Ability for project to accommodate multiple existing development areas
 - Project phasing
 - Alignment with current County planned improvements
- Models were updated with conceptual parameters for proposed improvements

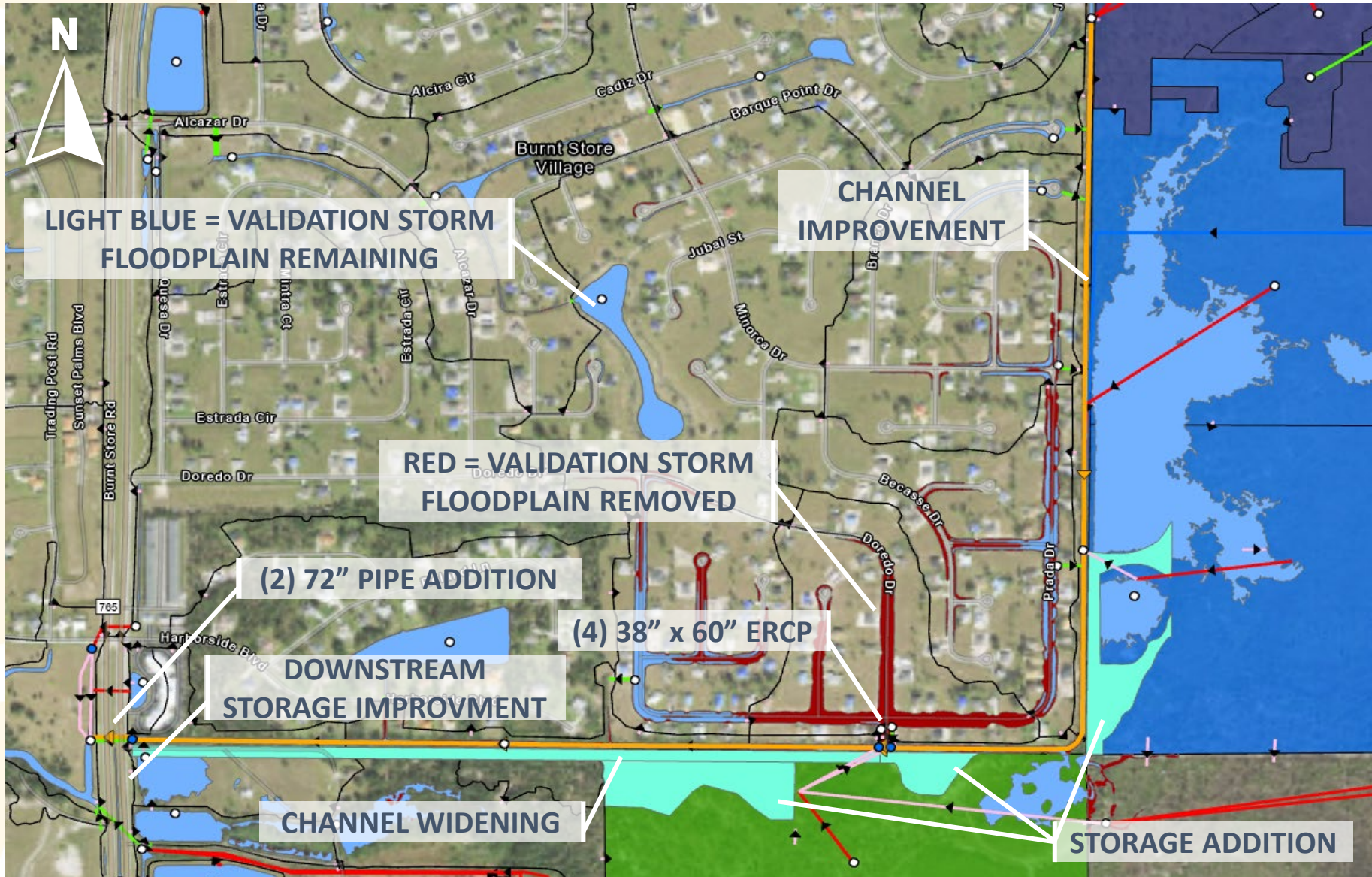
Level of Service (LOS)

- LOS criteria used to evaluate results of modeled alternatives
- **Criteria 1:** Estimated Building Elevation above 100-year, 24-hour flood elevation
 - Not a concern in existing/buildout conditions, becomes a concern in Future Conditions
 - Evaluated in Future conditions
- **Criteria 2:** Paved elevations of Burnt Store Rd above 100-year, 24-hour flood elevation
 - Evaluated in Future conditions
- **Criteria 3:** Local roads above flood elevation from validation event
 - Proposed conceptual projects implemented in validation model

Conceptual Project Refinement

- **Project 1 – Burnt Store Village Rim Ditch Improvements**
 - Evaluates storage improvements of Burnt Store Village Rim ditch
 - No modeled flooding in existing conditions 100-yr, some in Future Conditions
 - Flooding occurs adjacent to rim ditch in validation event
- **Project 2 – Burnt Store Colony Crossing**
 - Burnt Store Road Crossing improvements near Burnt Store Colony
 - Some pavement flooding in existing conditions at Burnt Store Road, significant pavement flooding in Future Conditions
 - Remove homes from 100-yr future conditions floodplain
- **Project 3 – Tropical Gulf Acres Improvements**
 - Overland flow may be impacted by future development
 - Incorporate storm bypass into new Burnt Store Road connector
 - Remove homes from 100-yr future conditions floodplain

Project 1: Burnt Store Village Rim Ditch Improvements



Legend

- Loading (Stage-Area) Node
- Junction Node
- Boundary Node
- Existing Conditions Validation Floodplain
- Alternative 1 Validation Floodplain
- ▶ Alternative 1 Improvement Links
- Alternative 1 Improvement Area

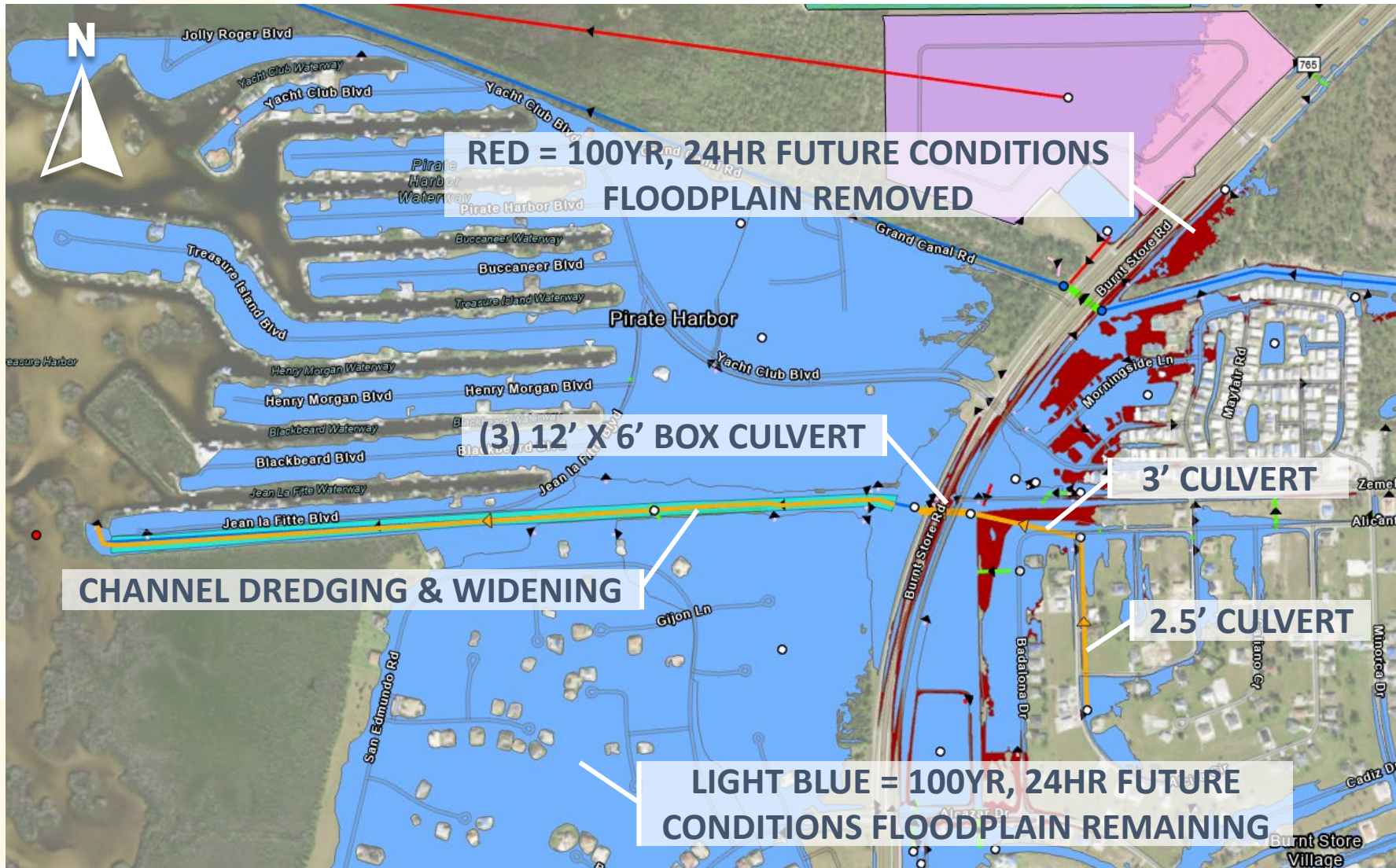
Modeled Links

- ▶ Channel
- ▶ Drop Structure
- ▶ Pipe
- ▶ Weir

Future Conditions Basin

- Existing
- B. Burnt Store Concept Plan
- C. Charlotte County Future Landuse

Project 2: Burnt Store Colony Crossing



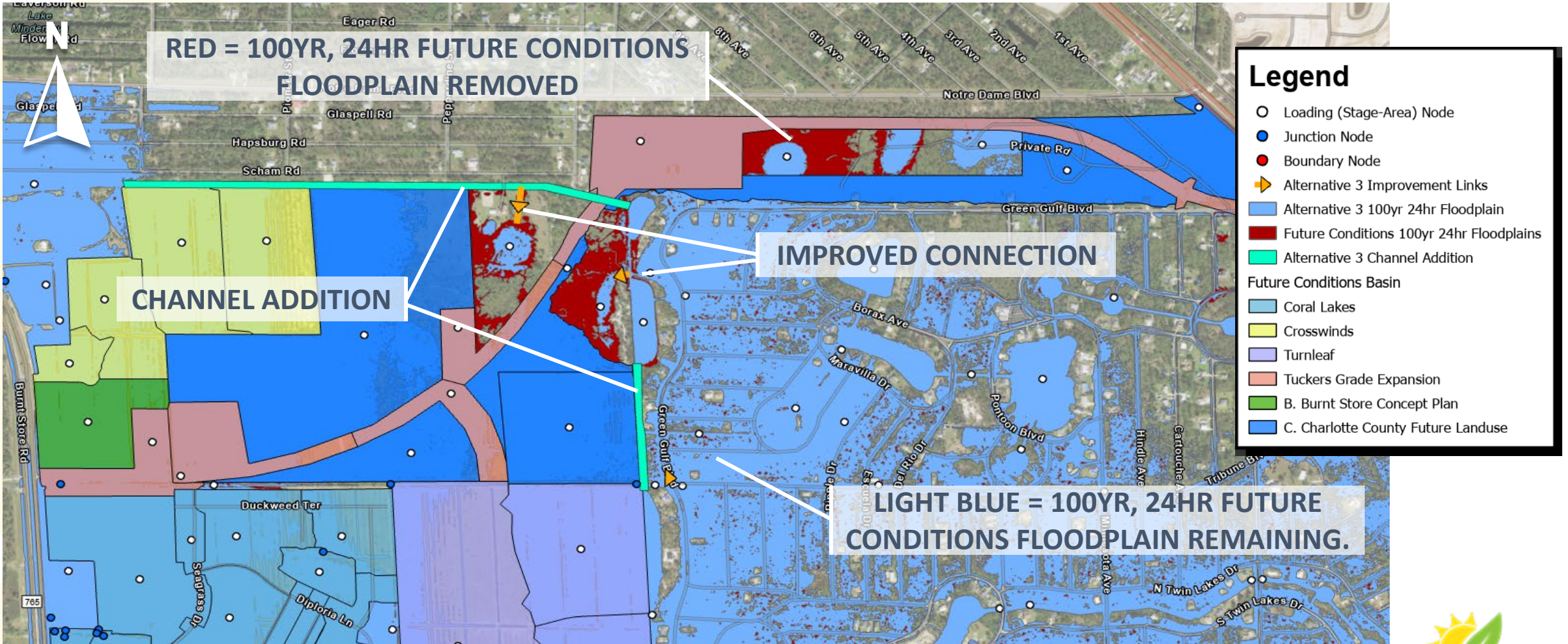
Legend

- Loading (Stage-Area) Node
- Junction Node
- Boundary Node

Modeled Links

- ➔ Channel
- ➔ Drop Structure
- ➔ Pipe
- ➔ Weir
- Heritage Station
- ➔ Alternative 2 Improvement
- Alternative 2 Channel Dredging and Widening
- Alternative 2 100yr 24hr Floodplains
- Future Conditions 100yr 24hr Floodplains

Project 3: Tropical Gulf Acres Improvements



Project Benefits

Project	Structures (homes) Removed from FC 100-yr floodplain	Burnt Store Rd FC LOS improvement (linear ft at northbound centerline)	Roads Removed from Validation Event Flooding (linear ft at local road centerline)
Burnt Store Village Rim Ditch Improvements	2	100	6,800
Burnt Store Colony Crossing	10	650	400
Tropical Gulf Acres improvements	6	0	0

Conclusions

- Existing Conditions: Flooding of homes and Burnt Store Road not a critical concern in current, rainfall-based 100yr-storm.
- Validation Storm: Flooding of local roads occurs in Burnt Store Village in “typical rainy day” event.
- Buildout Conditions: Model results are affected by project berms and associated overland flow changes. No significant reduction in LOS as long as County accounts for overland flow in future development.
- Future Conditions: LOS is reduced in project area due to future rainfall and future static tailwater conditions. These parameters are more impactful to model results than in Buildout Conditions.

Recommendations

- As projects are implemented, County should refine projects to design level.
 - This may include phasing of projects based on timeframe of improvements to Level of Service criteria (Ex. Storage improvements occur prior to crossing improvements).
- Proposed projects should align with current County planning efforts (ex. Burnt Store Road expansion, new Burnt Store – US-41 Connector)
- Overland flow from east should be considered for future development.

**Please visit us at the front to
provide your input and
feedback.**

Thank you!