

Drainage Improvement Evaluation Downtown Redevelopment Area East

City of New Port Richey

Drainage Improvement Evaluation

Downtown Redevelopment Area East

- ◉ Within the approximately 22 acres “Downtown Redevelopment Area” (Downtown District- East of Main St. Bridge), there are several existing stormwater outfall systems.
- ◉ North 1 to Orange Lake- Along Grand Boulevard (42” outfall)
- ◉ North 2 to Orange Lake- Outfall west of Grand Boulevard (24” outfall).
- ◉ North 3 to Orange Lake- Along Adams Street (60” outfall)



FIGURE 1.
 EXISTING STORMWATER SYSTEM LAYOUT
 DOWNTOWN REDEVELOPMENT AREA
 NEW PORT RICHEY, PASCO COUNTY, FLORIDA

Sources: FDOT Imagery 2017, ECT, 2020.



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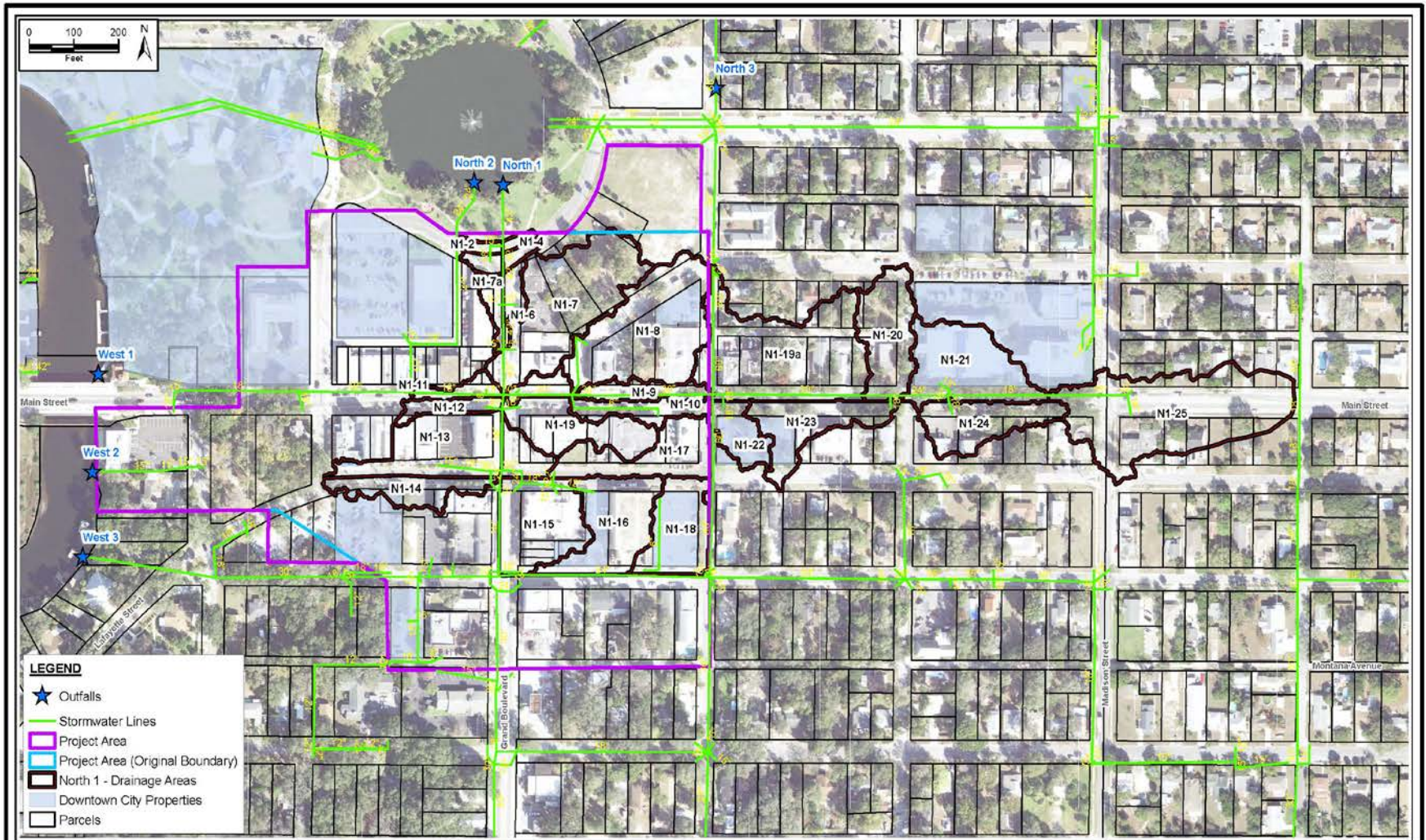


FIGURE 2.
 DRAINAGE AREA NORTH-1
 DOWNTOWN REDEVELOPMENT AREA
 NEW PORT RICHEY, PASCO COUNTY, FLORIDA

Sources: FDOT Imagery, 2017; ECT, 2020.



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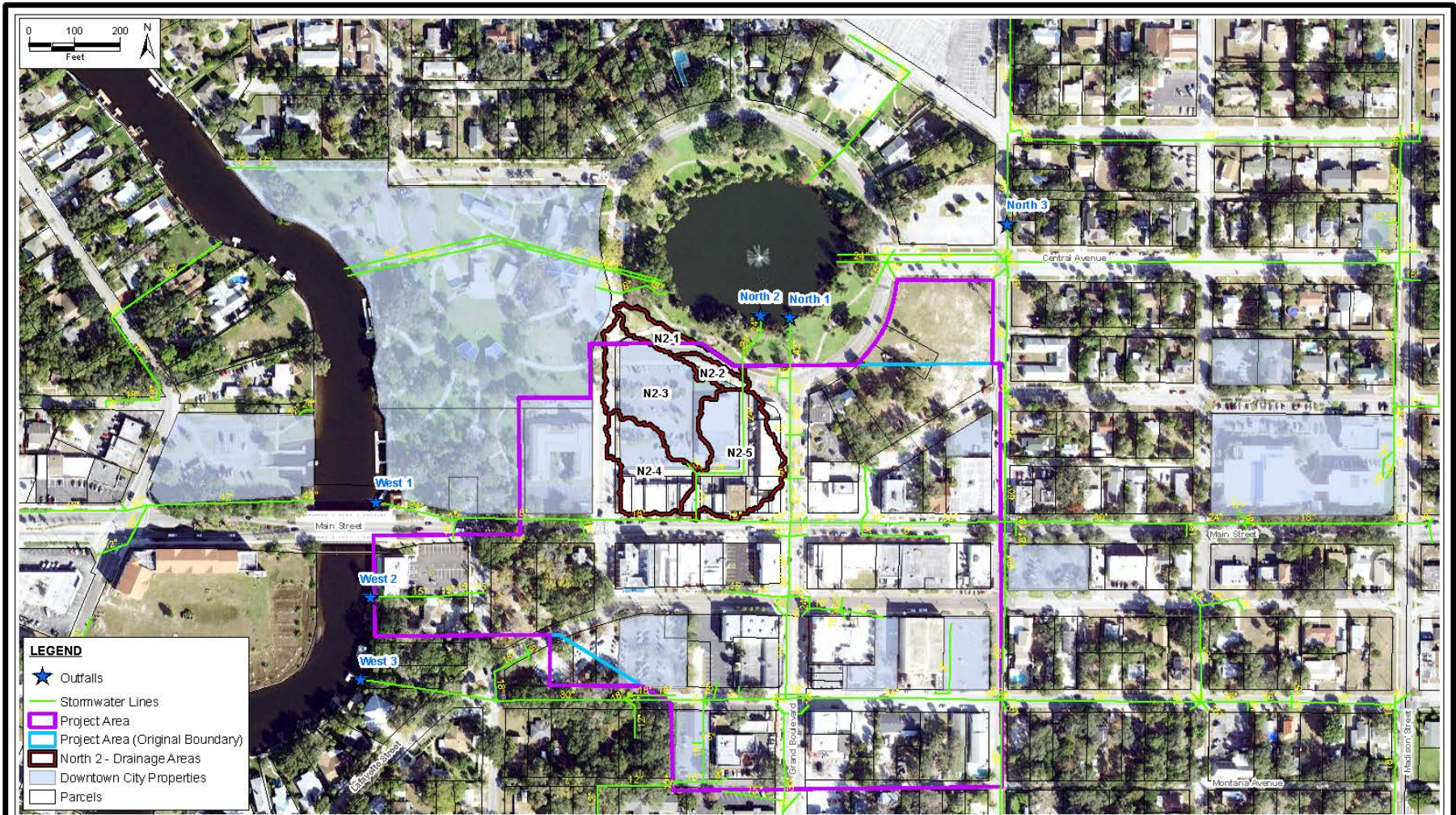


FIGURE 6.
 DRAINAGE AREA NORTH-2
 NPR DOWNTOWN REDEVELOPMENT
 NEW PORT RICHEY, PASCO COUNTY, FLORIDA

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ECT Environmental Consulting & Technology, Inc.

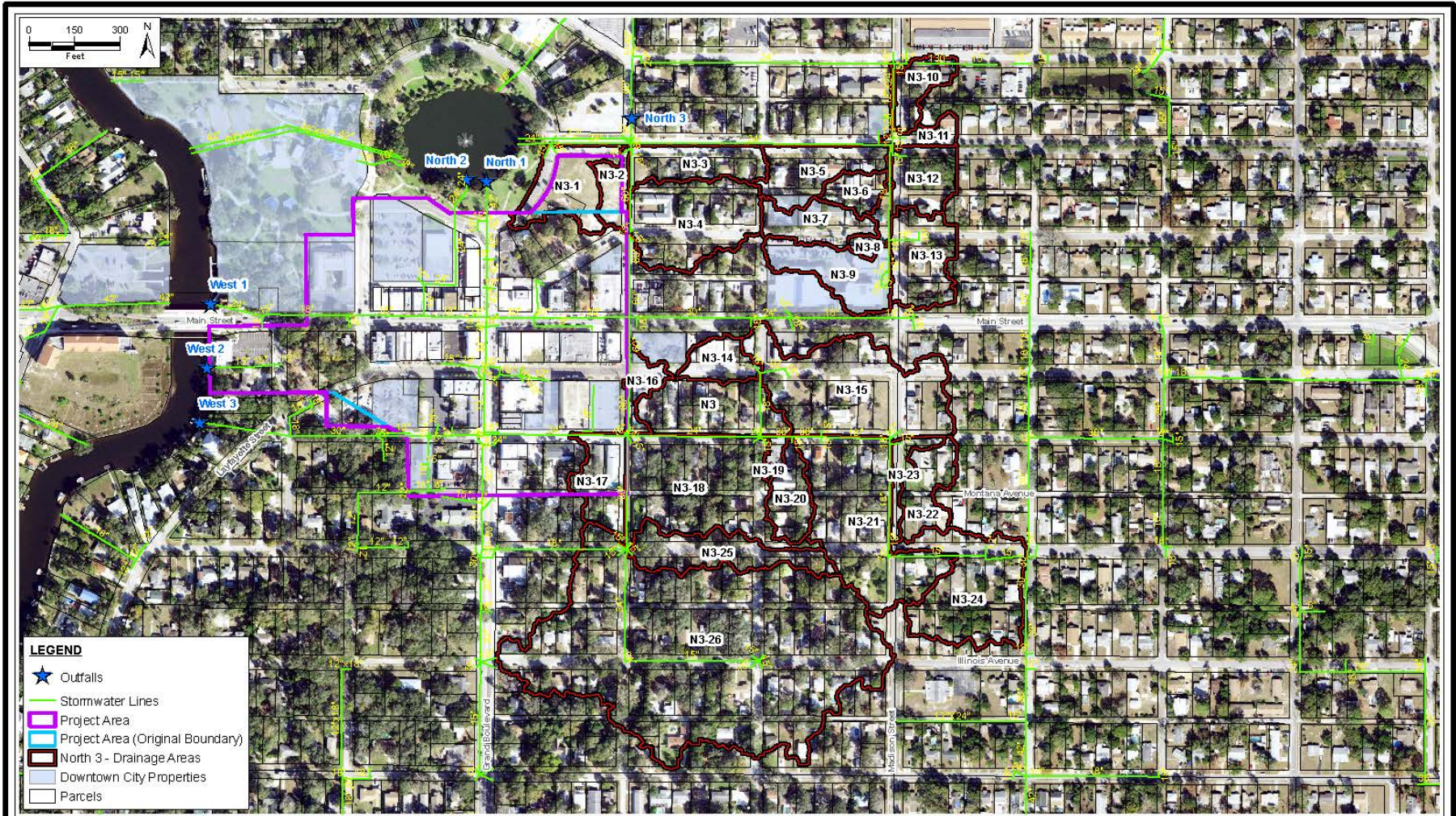


FIGURE 7.
 DRAINAGE AREA NORTH-3
 NPR DOWNTOWN REDEVELOPMENT
 NEW PORT RICHEY, PASCO COUNTY, FLORIDA



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- West 1 to River- Along Main Street to just north of bridge at Sims Park and the Pithlachascotee River (24" outfall)
- West 2 to River- Inlets at Lincoln Street and adjacent to Beef O'Brady's to the Pithlachascotee River (15" outfall)
- West 3 to River- North along Grand Boulevard to Missouri Avenue west to the Pithlachascotee River (30" outfall)



FIGURE 2.
DRAINAGE AREA WEST-1
NPR DOWNTOWN REDEVELOPMENT
NEW PORT RICHEY, PASCO COUNTY, FLORIDA

Scale: ECT, 2020.

ECT Environmental Consulting & Technology, Inc.

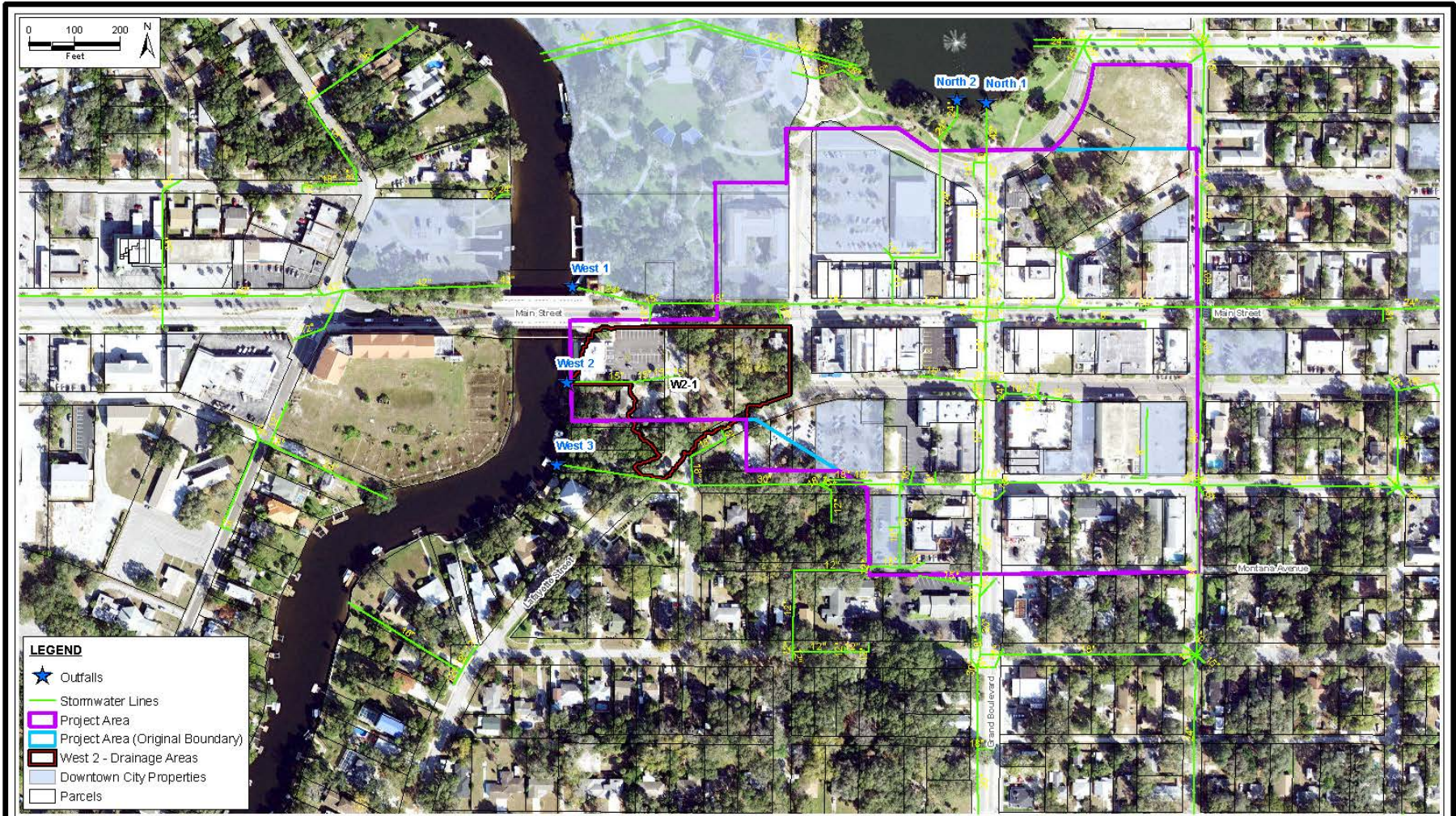


FIGURE 3.
 DRAINAGE AREA WEST-2
 NPR DOWNTOWN REDEVELOPMENT
 NEW PORT RICHEY, PASCO COUNTY, FLORIDA

Soil cont: ECT, 2020.



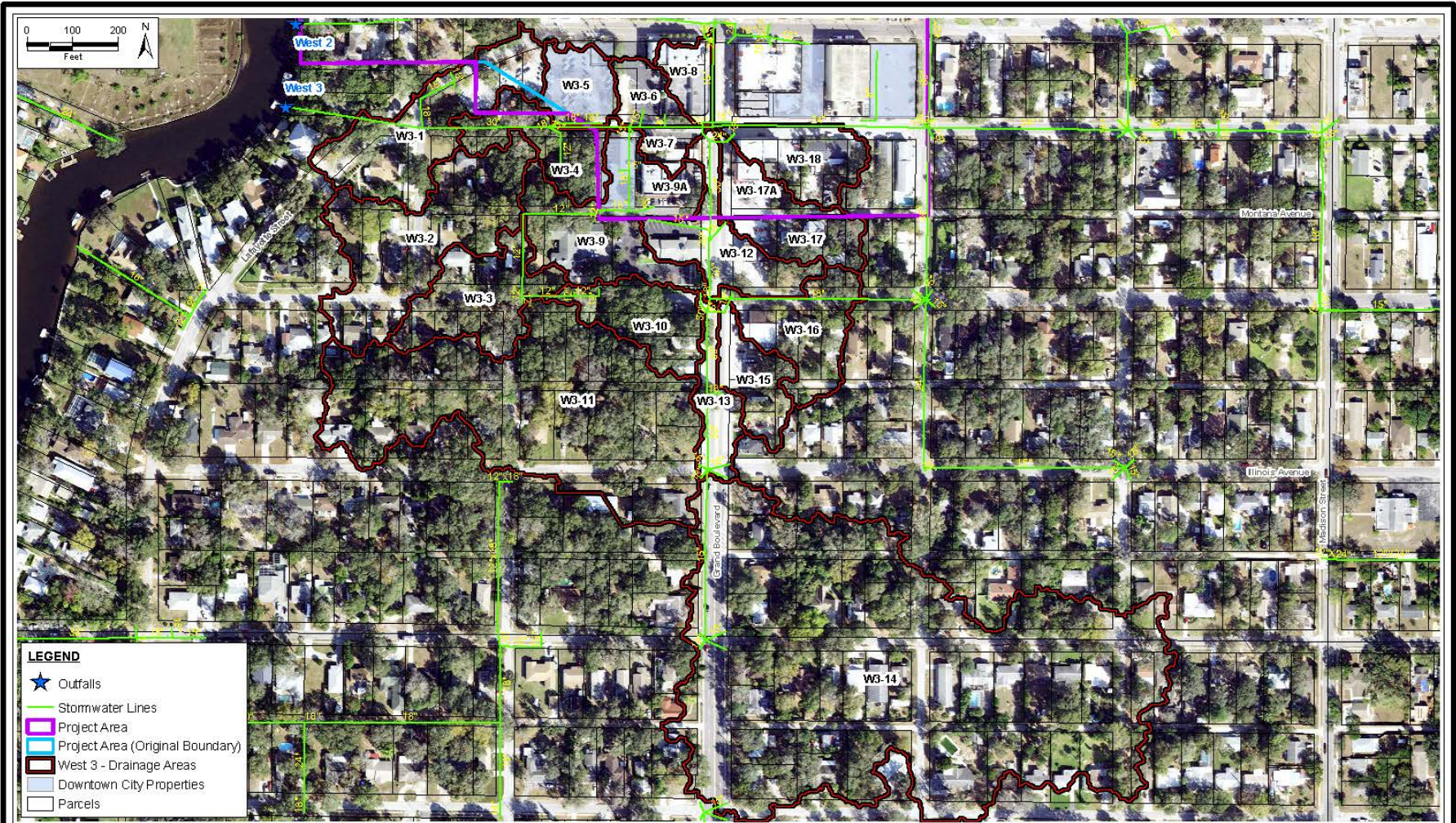


FIGURE 1.
 DRAINAGE AREA WEST-3
 NPR DOWNTOWN REDEVELOPMENT
 NEW PORT RICHEY, PASCO COUNTY, FLORIDA

Scale: ECT, 2020.



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Existing Drainage Evaluation

- ⦿ ECT completed an evaluation of the existing outfall systems.
- ⦿ ECT calculated drainage areas, flow rates and existing pipe capacities for the 5-year, 10-year and 25-year storm events.

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- ◉ To evaluate the impact of redevelopment, it was assumed that all parcels and sub-basins within the Area would be developed to be approximately 80% impervious area
- ◉ The flow rates to each outfall were then calculated with the increased impervious area.
- ◉ Proposed pipe sizes for each outfall were then determined.

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- ⦿ Based on the flows calculated, the existing outfall pipe sizes are adequate for outfalls N1, N2 and N3.
- ⦿ Outfall W1 should be upgraded from a 24-inch to a minimum 30-inch pipe.
- ⦿ Outfall W2 should be upgraded from a 15-inch to a minimum 24-inch pipe.
- ⦿ Outfall W3 should be upgraded from a 30-inch to a minimum 48-inch pipe.

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- Although several of the outfalls in the Downtown Redevelopment East Area have adequate capacity to accommodate redevelopment peak discharges, the regulatory agencies would require that stormwater treatment be provided for any new impervious area above existing conditions.
- Currently; stormwater treatment for the north outfalls (N1, N2 and N3) is provided in baffle boxes and Orange Lake prior to discharging to the Pithlachascotee River.
- Currently there is no stormwater treatment for the west outfalls (W1, W2 and W3) that discharge directly to the Pithlachascotee River.



FIGURE 8.
DRAINAGE AREA WEST-1 CONCEPTUAL PLAN
DOWNTOWN REDEVELOPMENT AREA
NEW PORT RICHEY, PASCO COUNTY, FLORIDA

Source: FDOT Imagery, 2017; ECT, 2020.



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FIGURE 9.
 DRAINAGE AREA WEST-2 CONCEPTUAL PLAN
 DOWNTOWN REDEVELOPMENT AREA
 NEW PORT RICHEY, PASCO COUNTY, FLORIDA

Sources: FOOT Imaging, 2017; ECT, 2020.



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FIGURE 10.
 DRAINAGE AREA WEST-3 CONCEPTUAL PLAN
 DOWNTOWN REDEVELOPMENT AREA
 NEW PORT RICHEY, PASCO COUNTY, FLORIDA

Sources: FDOT Imagery, 2017; ECT, 2020.



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- Conceptual construction costs were estimated for the proposed outfall and stormwater treatment improvements.
- The estimated costs for each outfall improvement include proposed inlets, pipes, manholes, pavement replacement, backflow valves and baffle boxes for stormwater treatment.

The estimated construction costs are:

- \$374,910 for Outfall W1
- \$280,540 for Outfall W2
- \$745,350 for Outfall W3

These costs do not include survey, geotechnical, final design, or permitting costs.

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RESILIENCY

Increased Design Storm Events

- Most drainage systems are designed to handle the volume produced during a 5-year or a 10-year storm event. The City of New Port Richey requires storm water outfall systems to be designed to a 25-year storm event.
- Currently stormwater systems are permitted by the Southwest Florida Water Management District (SWFWMD). SWFWMD also uses a 25-year design storm event for permitting. The rainfall amount used in the permits are based on looking back at historical rainfall record statistics.
- There have been discussions about changing the rainfall amounts used and/or increasing the design storm event (from a 25-year event to a 50-year event or 100-year event), but changes to the regulatory rules have not been made at this time.

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Sea Level Rise

- ⦿ As the sea level continues to rise in response to the changing global climate, Florida and the City of New Port Richey will become more and more susceptible to a wide variety of negative effects, primarily to its low topographic elevation and location adjacent tidally influenced water bodies.
- ⦿ Many of the City of New Port Richey stormwater outfalls discharge to tidally influenced water bodies (Pithlachascotee River, Orange Lake). As sea level rise the existing stormwater outfalls have reduced capacity and during certain high tide conditions may allow tidal surge to back into the stormwater system causing shallow flooding.
- ⦿ One option to reduce the effects of sea level rise on the stormwater outfall systems is to install check valves on the stormwater outfall pipes. These check valves allow stormwater to flow out, while restricting backflow from high tides events into the pipes. The check valves can be expensive based on the size of the outfall pipe and require regular maintenance to insure proper operation.

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- It is likely the outfall improvements would require initial funding by the City.
- Further study would be required to determine whether some of these outfall improvement costs could also be financed through: an ERU basis, developer bought credits to not have to provide onsite stormwater retention, special taxing district, etc., which is not part of the current study.
- Determining “costs of credits” for redevelopment parcels would require identifying the project construction cost based upon the desired level of service (25-year or above), identifying the number of parcels within each outfall area, and determining the cost per parcel based on current and future development.

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If the City desires to proceed with the outfall upgrades several items need to be considered:

- ⦿ If the City proposes to increase the required level of service beyond the current 25-year storm event to address future climate related rainfall changes, the proposed drainage outfall pipe sizes and associated overall construction costs would increase.
- ⦿ This evaluation did not include detailed modeling of the existing or proposed drainage outfall systems. Additional modeling of the existing outfalls could lead to additional alternatives to reduce the outfall upgrade requirements and costs.
- ⦿ This evaluation did not include any discussions with regulatory agencies.
- ⦿ Many of the parcels that contribute to outfall W1 are City owned (Sims Park, Hacienda Hotel).
- ⦿ Outfall W2 is located within a limited 6-foot drainage easement south of Beef O'Brady's. Additional Easement may be required for construction of a larger pipe system.
- ⦿ Only 16% of the W3 drainage area is within the Downtown Redevelopment East Area. Approximately 28 acres of the contributing W3 drainage area (84%) is outside of the Downtown Redevelopment East Area. It is not clear if there is an existing drainage easement at the W3 outfall location from Lafayette Street to the Pithlachascotee River.