

ST. ROCH

Drainage Upgrades and Green
Infrastructure

FEMA Hazard Mitigation Grant Program

Resilience Design Review Committee

September 25, 2017



CITY OF NEW ORLEANS



moffatt & nichol

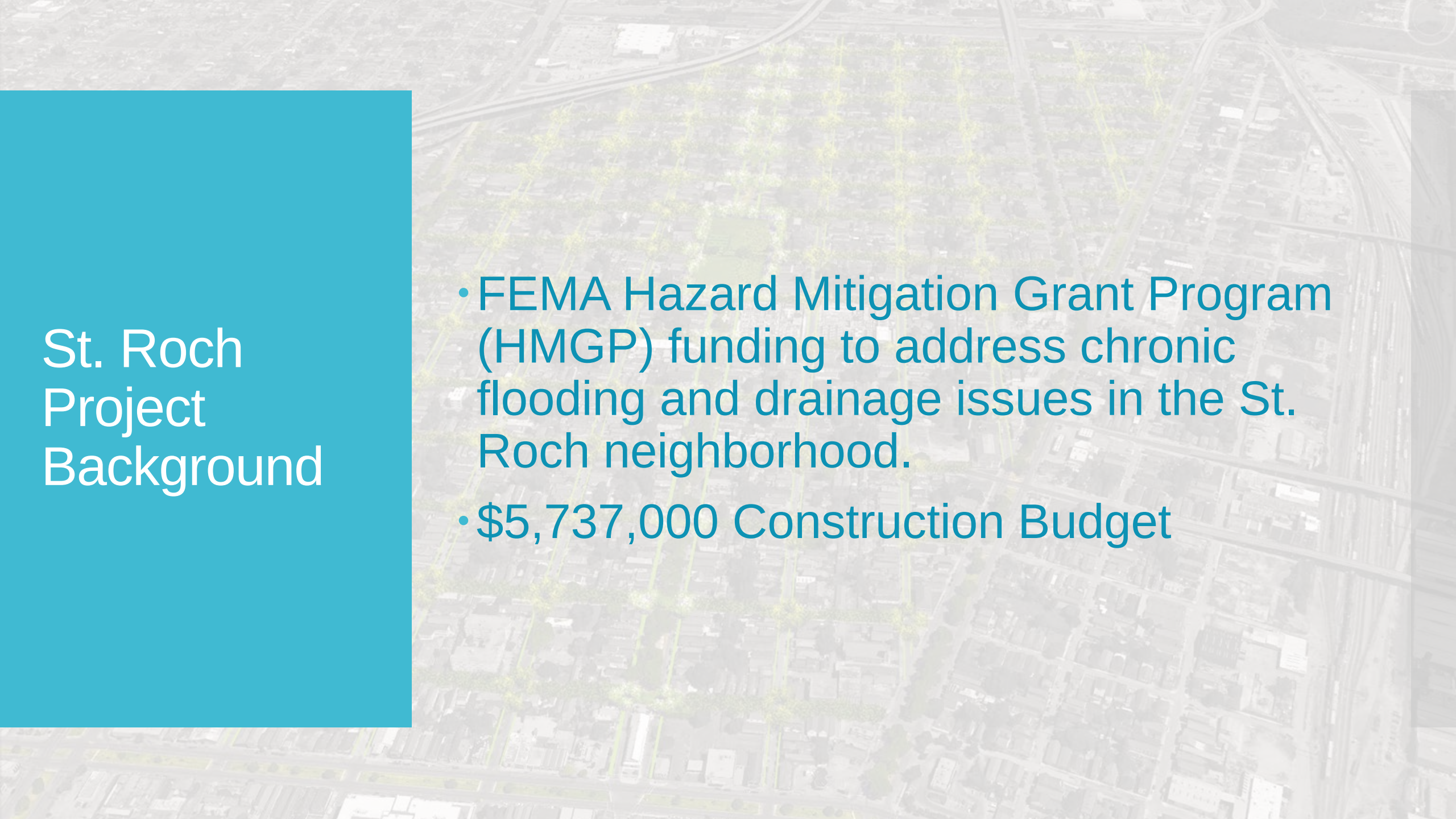


St. Roch Presentation Agenda

- Project Background & Status
- The Problems – Existing Drainage & Street Conditions
- The Solutions – Improved Subsurface Drainage & Green Infrastructure
- Project Benefits – Reduced Flooding & Functional Streets
- Project Opportunities – Traffic Patterns
- Project Challenges – Utilities & Construction Costs
- Next Steps

St. Roch Character



An aerial photograph of a city neighborhood, likely St. Roch, showing a grid of streets and buildings. A semi-transparent blue rectangle is overlaid on the left side of the image, containing white text. The text is arranged in three lines: 'St. Roch', 'Project', and 'Background'.

St. Roch Project Background

- FEMA Hazard Mitigation Grant Program (HMGP) funding to address chronic flooding and drainage issues in the St. Roch neighborhood.
- \$5,737,000 Construction Budget



St. Roch Project Status

- 10% Concept Design and Probable Cost Estimate Approved
- Neighborhood Canvassed
- 30% Project Scope Report supporting a Benefit-Cost Ratio (BCR) >1.0 Approved by DPW & FEMA
- Survey and Geotechnical Investigations Completed
- Community Meeting Conducted
- Draft 60% Design Plans Complete
- Plan-In-Hand Meeting Conducted

St. Roch Project Outreach & Coordination



Important
Changes
Since 30%
Design
RDRC
Presentation

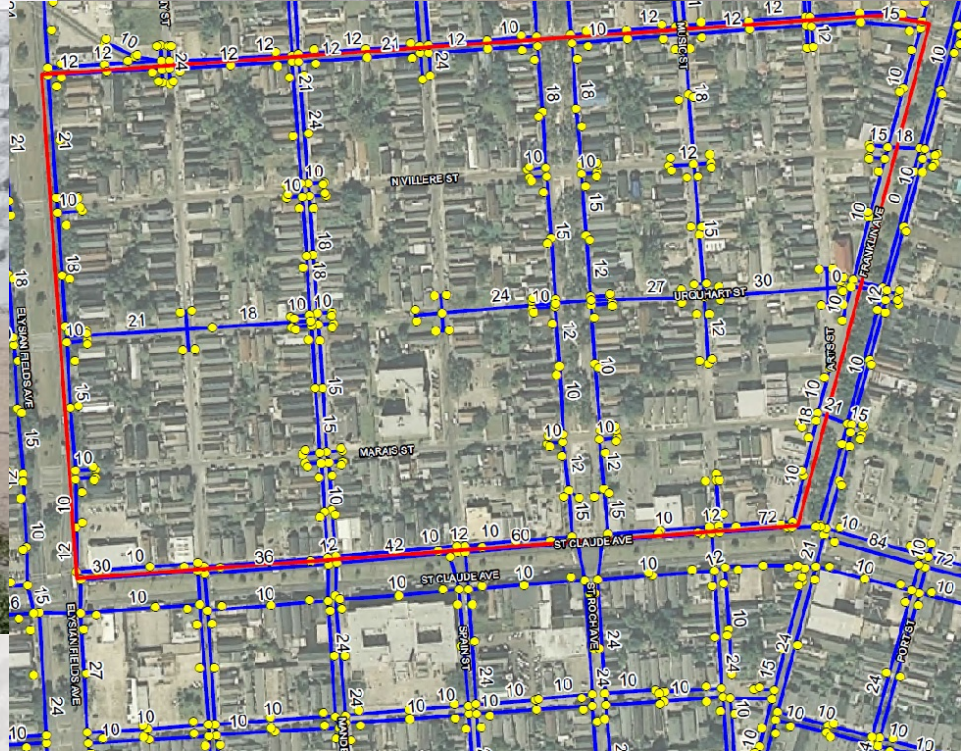
- Smaller Pipes (Address Conflicts)
- Extensive Utility Replacement & Realignment
- Refinement of Streetscape Design
- Increase in Project Construction Costs



Project Agency Coordination

- Coordination Between Multiple Agencies / Owners
 - DPW (Maintenance, Traffic, Engineering, Construction, Stormwater, Green Infrastructure)
 - S&WB (Water, Sanitary Sewer, Stormwater Utilities)
 - LA DOTD Orleans District
 - Entergy (Electric, Gas)
 - AT&T (Telecommunications)
 - Cox Cable (Telecommunications)
 - Planning Department
 - Department of Parks and Parkways
 - FEMA
 - Recovery Roads (N-Y Associates)

St. Roch Drainage Problems



St. Roch Street Conditions



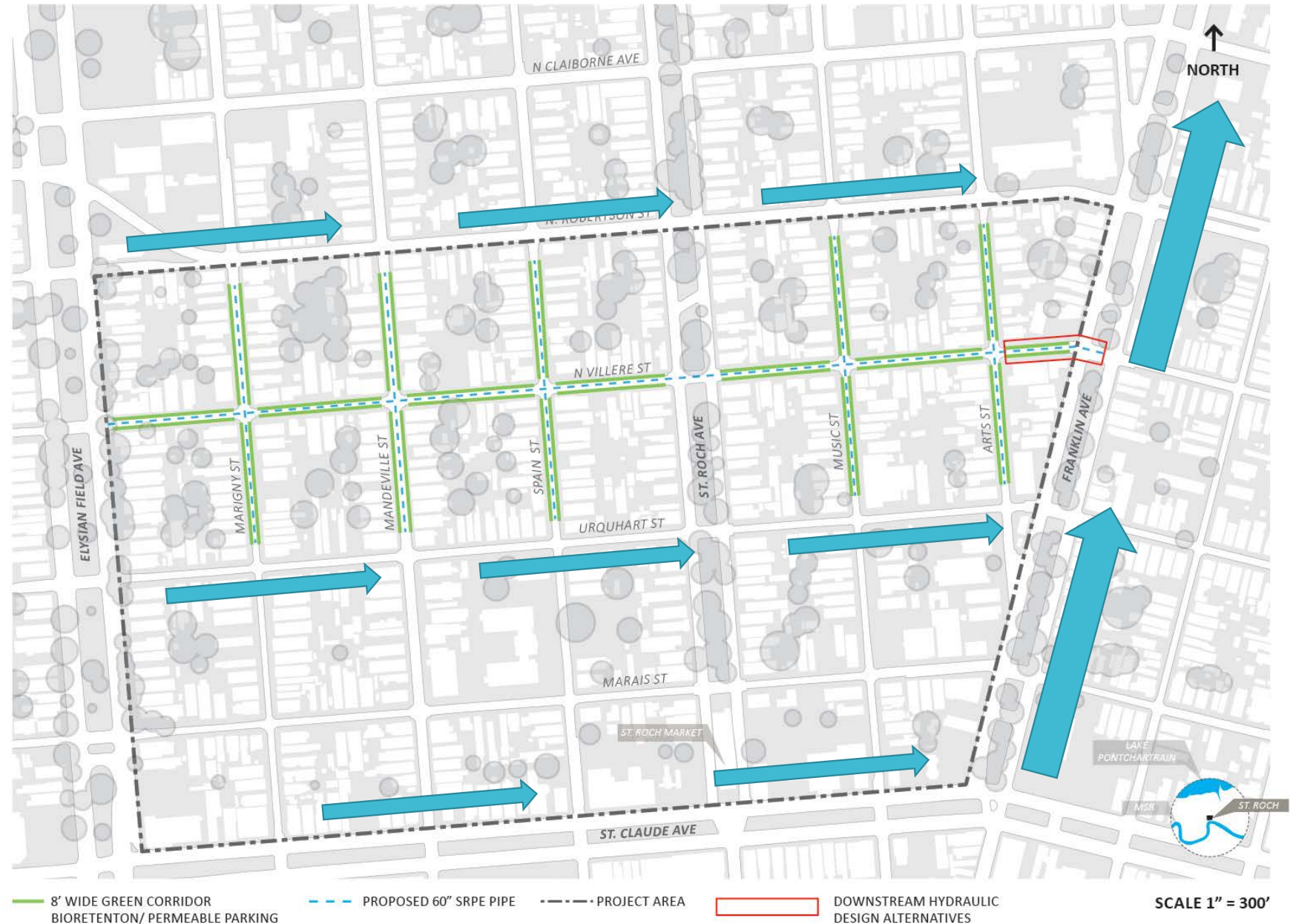
Pavement from stoop to stoop



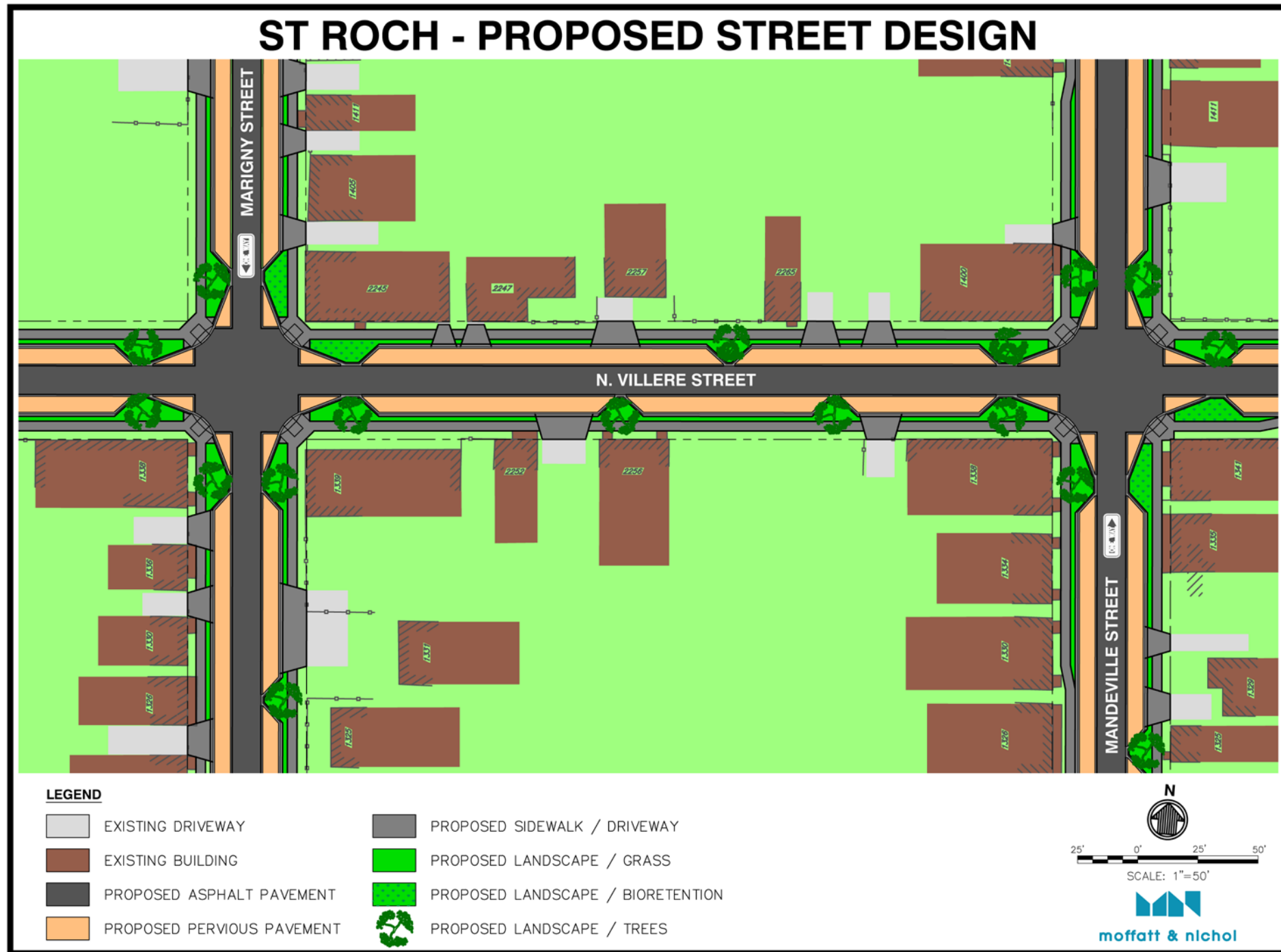
St. Roch Drainage Pattern & Area of Intervention

ST. ROCH

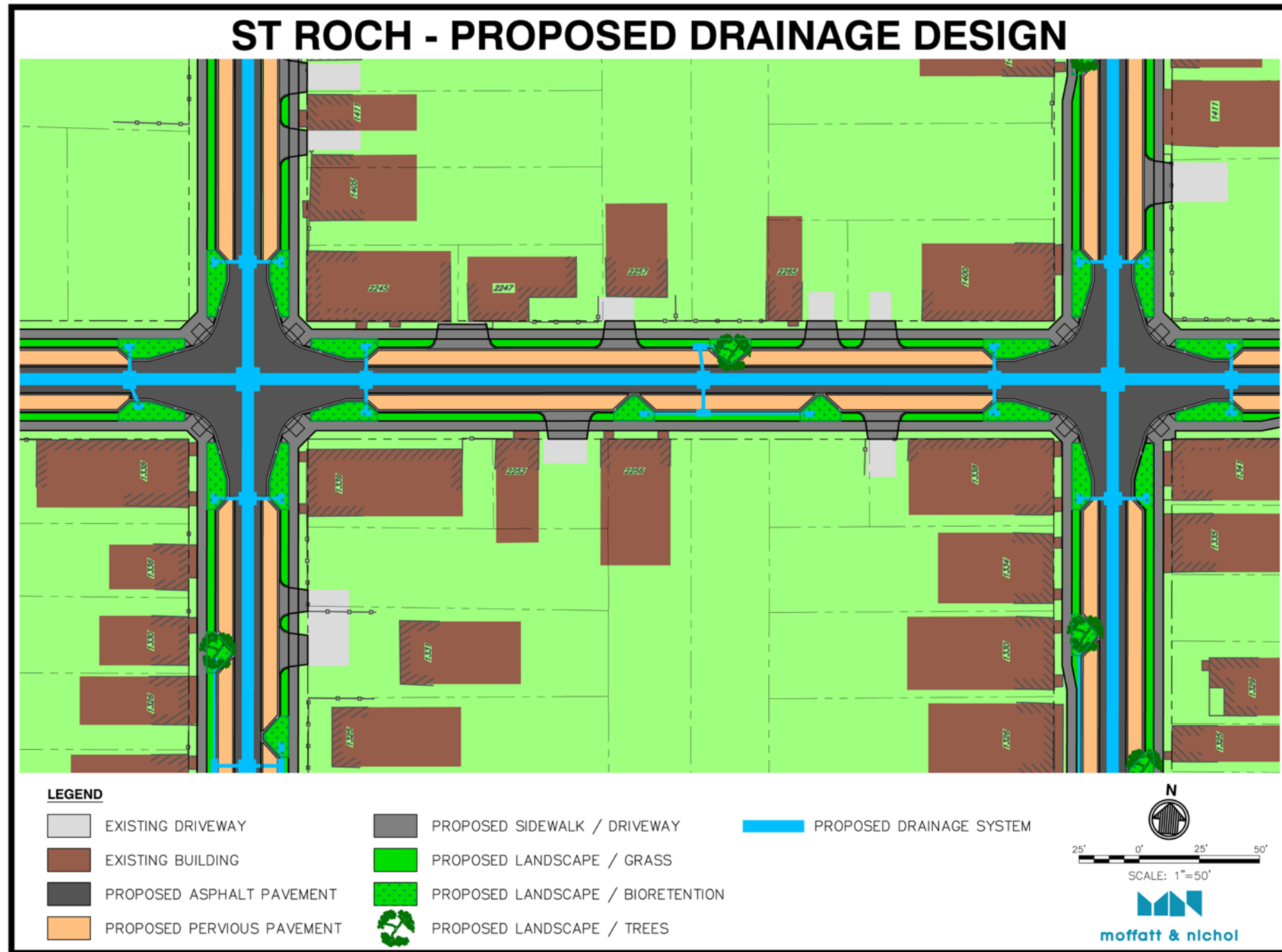
SCHEMATIC CONCEPT PLAN



St. Roch Proposed Design Elements – Green Infrastructure

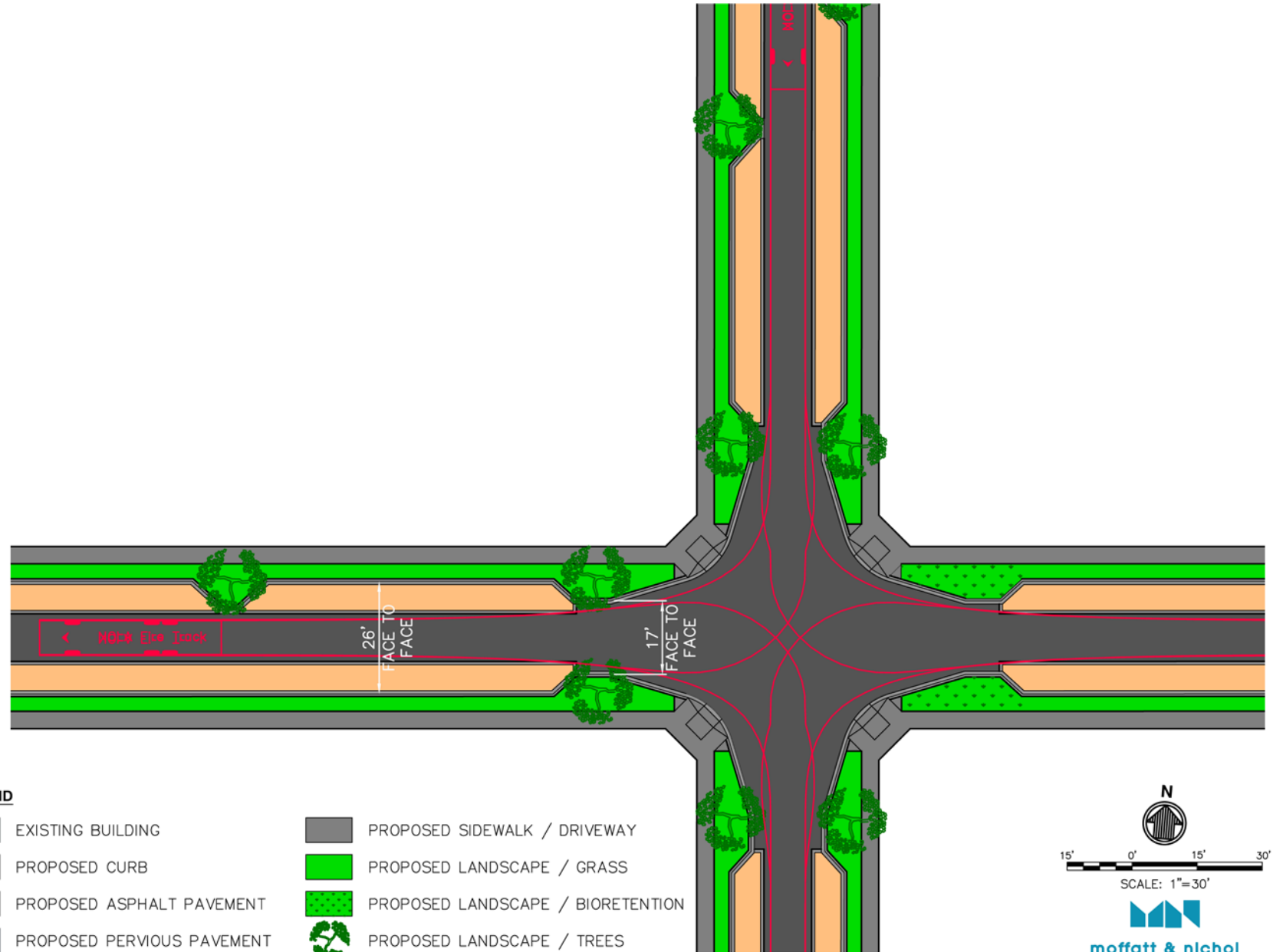


St. Roch Proposed Design Elements – Subsurface Drainage



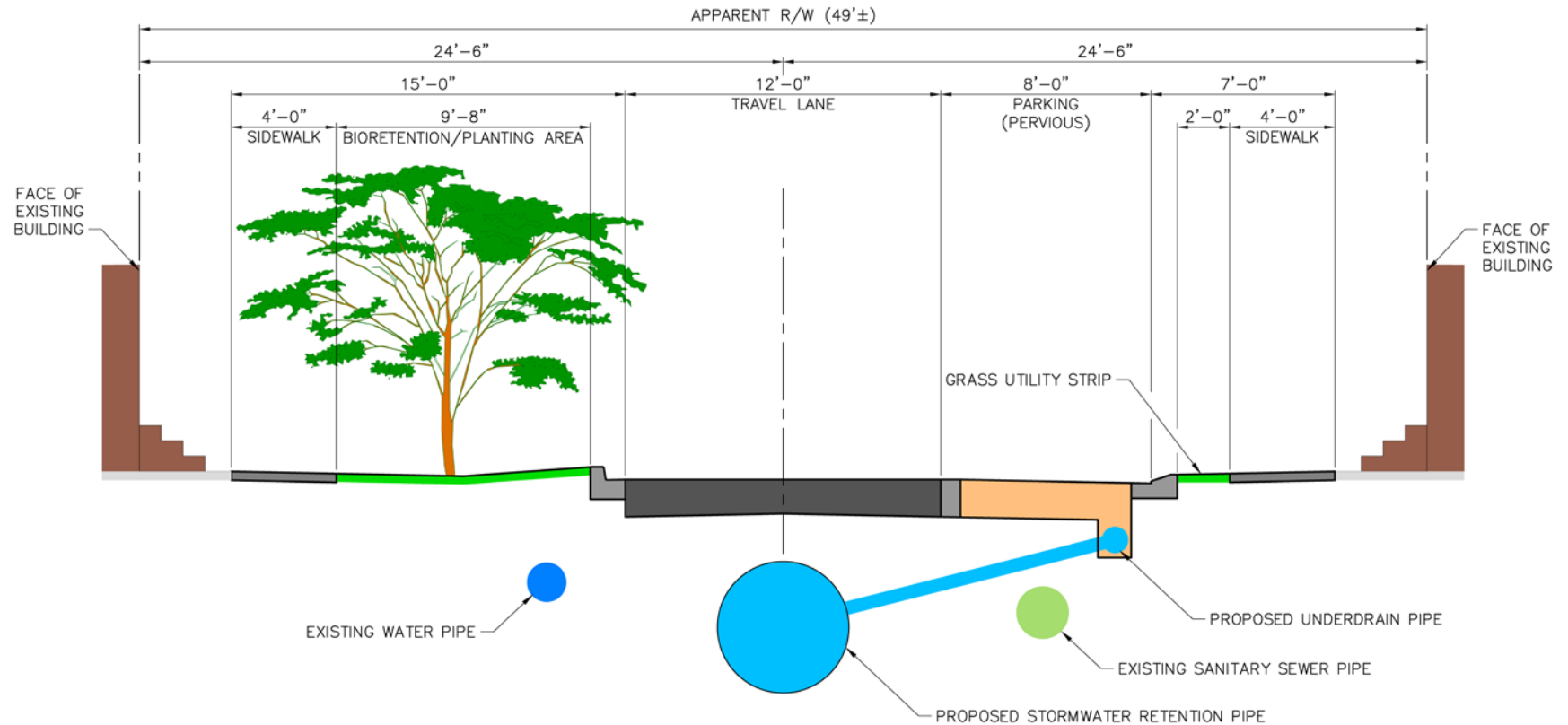
St. Roch – Refinement of Intersection Bulb-Outs

ST ROCH - REVISED PROPOSED INTERSECTION DESIGN



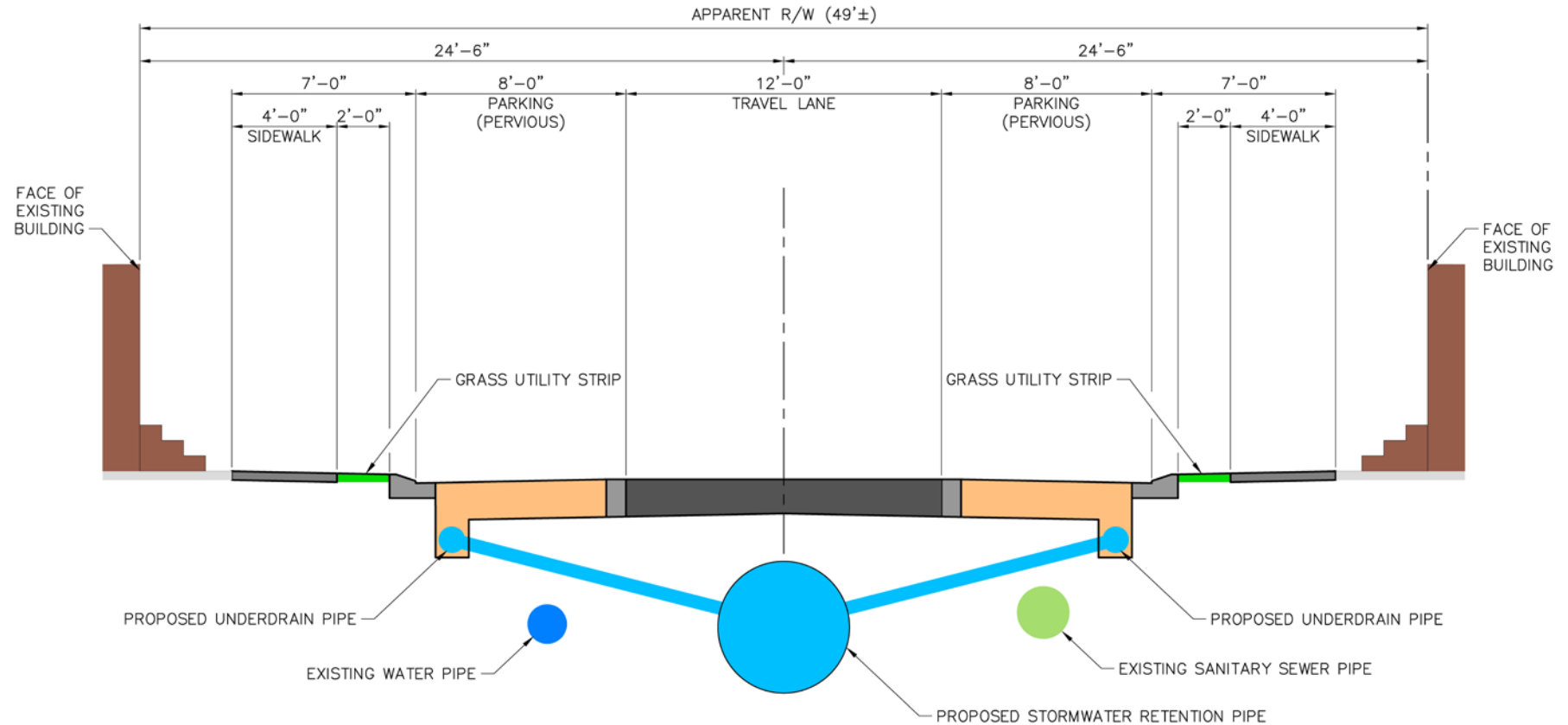
St. Roch Proposed Design Elements – Street Cross Section

ST ROCH - PROPOSED STREET DESIGN TYPICAL SECTION



St. Roch Proposed Design Elements – Street Cross Section

ST ROCH - PROPOSED STREET DESIGN TYPICAL SECTION





St. Roch
Proposed
Design
Elements —
BEFORE



St. Roch
Proposed
Design
Elements —
AFTER



Benefits of New Streetscape

- Reduced Impervious Surfaces (less runoff)
 - Existing Condition = 90% Impervious
 - Proposed Condition = 64% Impervious
 - 30% Reduction
- On Street Parking More Organized
- Plants & Shade
- Improved Aesthetics
- Storage Spaced Eliminate Standing Water

St. Roch Proposed Design Elements – Green Infrastructure



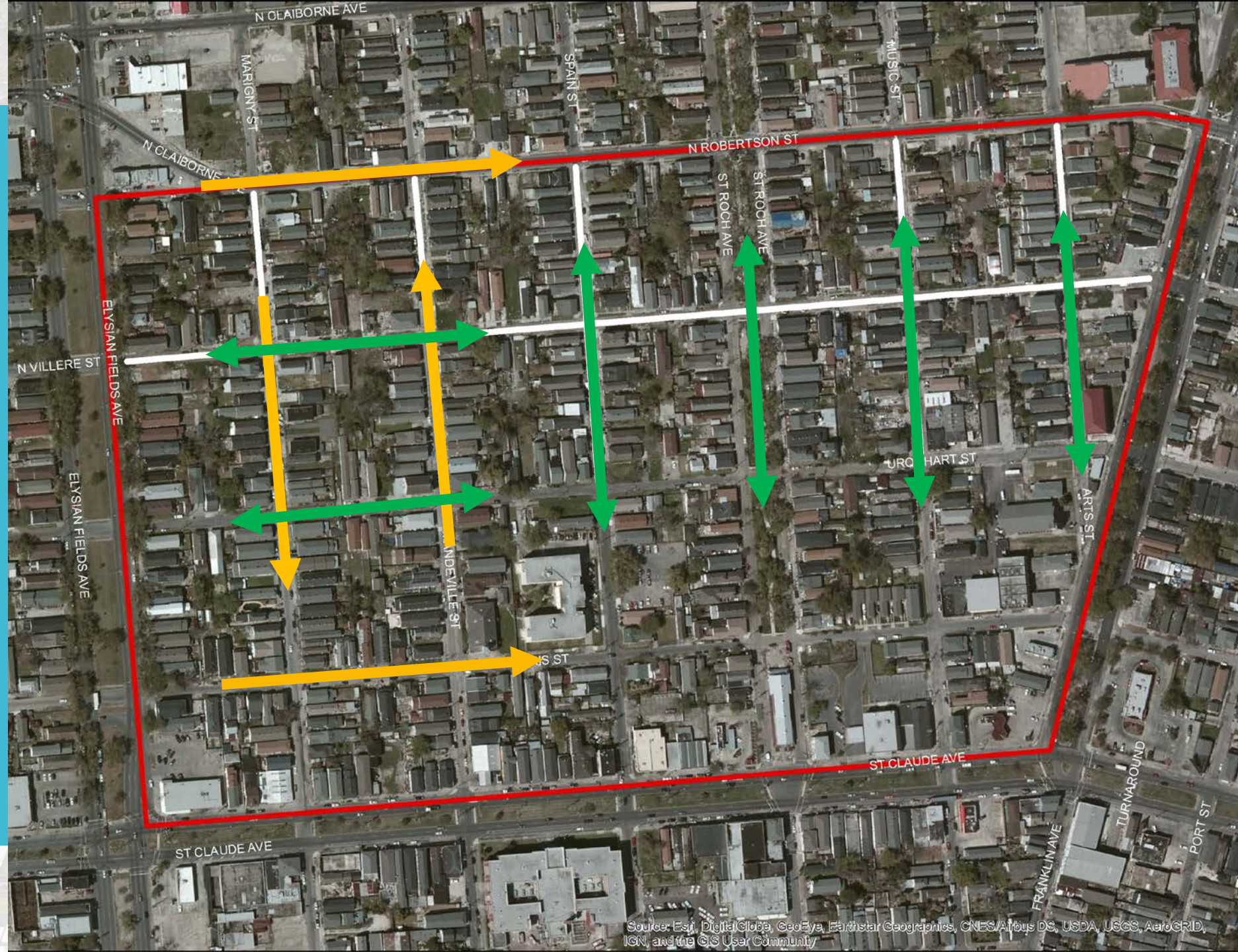
Flood Reduction Performance

Storm Intensity (24 hours)	Average Flood Level Reduction (feet)	Average Flood Level Reduction (%)	Maximum Flood Level Reduction (feet)	Maximum Flood Level Reduction (%)	Average Flood Duration Reduction (hrs)	Average Flood Duration Reduction (%)	Maximum Flood Duration Reduction (hrs)	Maximum Flood Duration Reduction (%)
5.4 inches	0.2	26%	0.5	67%	0.3	24%	0.6	49%
6.9 inches	0.2	17%	0.6	44%	0.3	12%	0.8	31%
8.3 inches	0.3	16%	0.7	41%	0.4	18%	1	33%

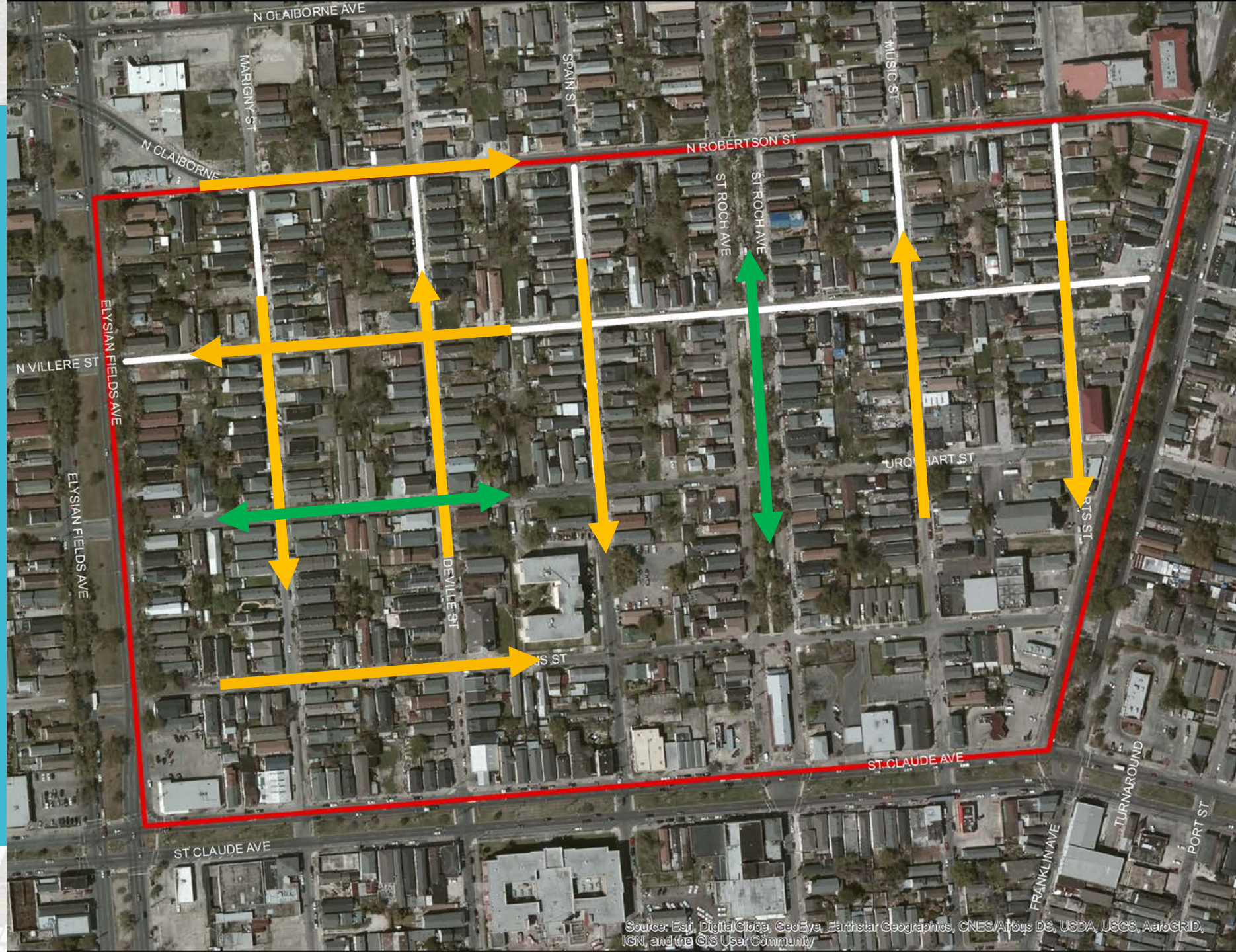
In Practical Terms:

St. Roch Project Opportunities

Current Traffic Pattern



Potential Traffic Pattern





St. Roch Overall Project Benefits

- Reduce Flooding & Improve Water Quality
- Increase Public Safety
- Reduce Mosquitos and Associated Health Risks
- Improve Resident Quality of Life
- Enhance Community & Neighborhood Morale
- Reduce Resident Financial Burden
- Public Education & Community Outreach
- Increase Community Resilience

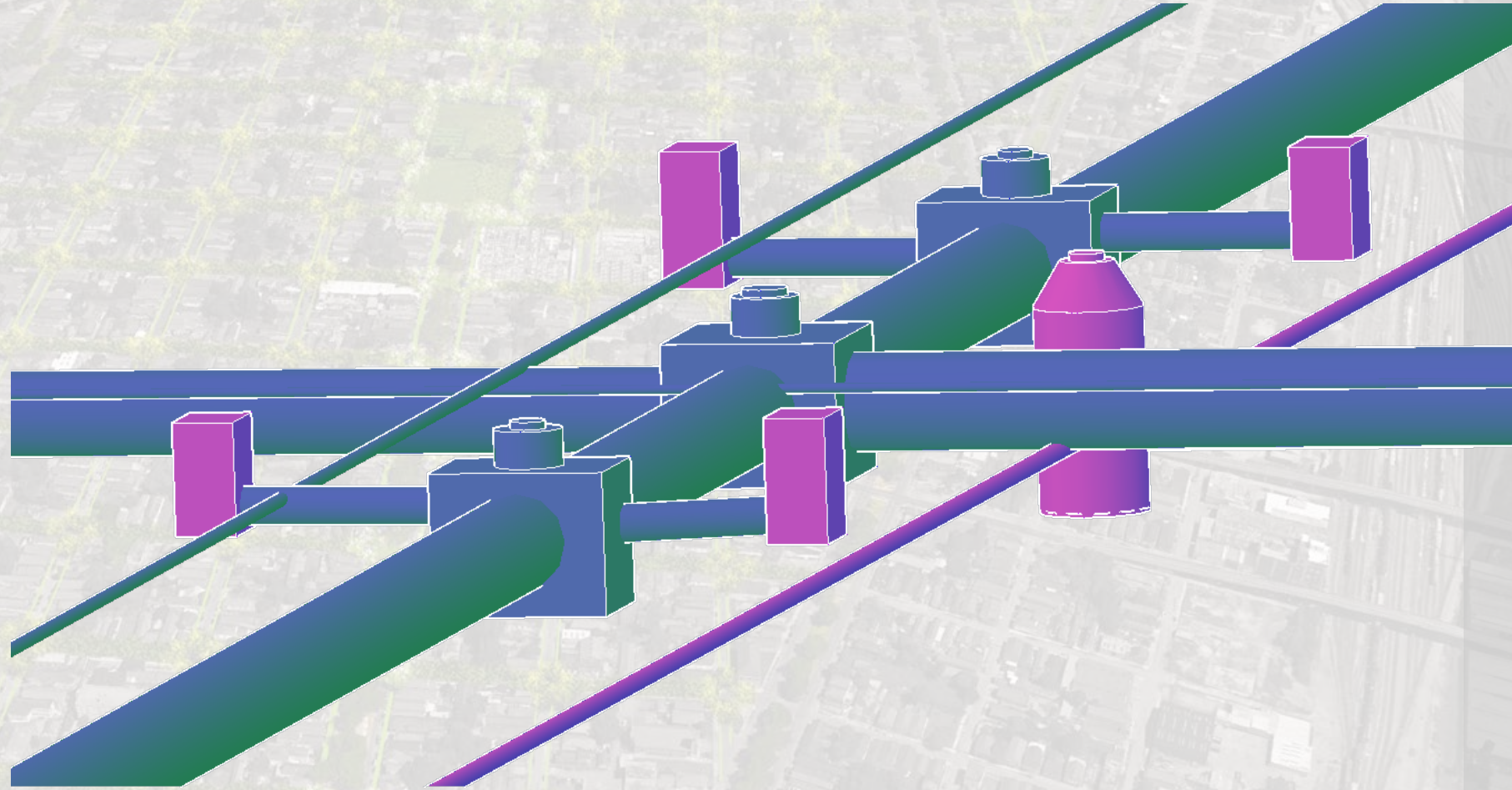


St. Roch Overall Project Innovations

- Green Streets
- Old Drainage Paradigm = Conveyance
- New Drainage Paradigm = Retention, Detention, Infiltration
- Discrete and Optimized Subwatershed

Civil-3D Analysis of Utility Conflicts

St. Roch
Project
Challenges –
Utility
Conflicts

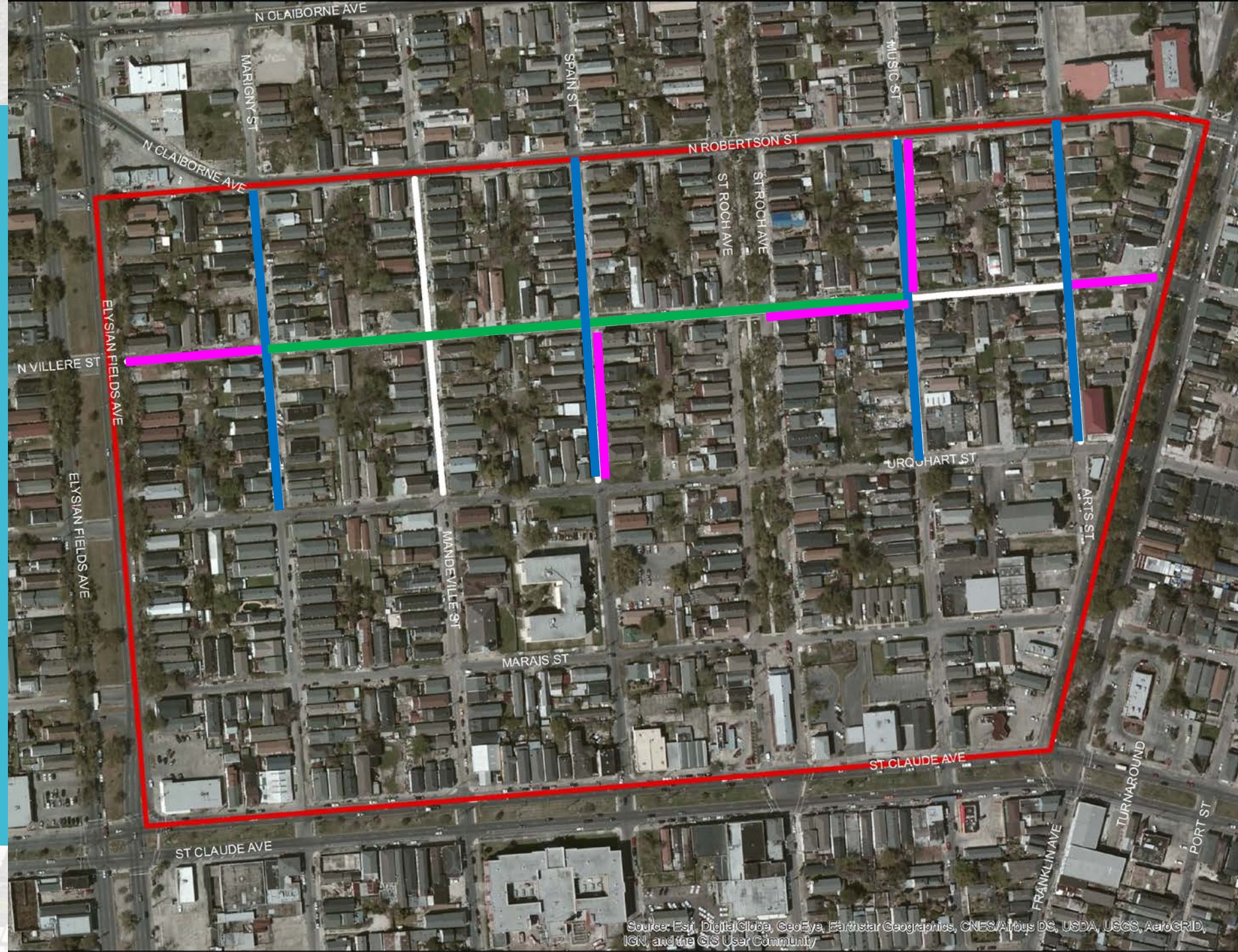


St. Roch Utility Replacement

New Water

New Sewer

Parallel Sewer



St. Roch Project Construction Csts

- HMGP Construction Budget = \$5.7M
- Current Opinion of Construction Cost = \$7.3M (with 15% contingency)
- Costs of Major Elements
 - Utility Relocation/Replacement = \$1.9M
 - Green Infrastructure = \$603K
 - Big Pipes = \$880K
 - Street Paving = \$903K
 - Sidewalks = \$189K
- Internal Project Partners Identified to Support Street & Sidewalk Costs (St. Roch Recovery Roads Funds)

St. Roch Project Schedule

- Phase III Deliverables – September 2017
 - 60% Plans
 - Preliminary Design Report
 - Updated Quantities & Cost Estimate
- Phase IV Deliverables – November 2017
 - 90% Plans
 - Final Design Report
 - Final Specs ,Comps, Quantities & Costs
 - Bid Proposal Package
 - Drainage Model Updates
- Advertise for Bid – March 2018
- Phase V Deliverables – TBD
 - Construction Administration
 - Resident Inspection Services

Conclusion

- Questions, Comments or Concerns?
- Project Manager:
 - Jason Doll, CPSWQ
Senior Scientist/Project Manager
 - Email: jdoll@moffattnichol.com
- Project Principle:
 - Jonathan Hird, PE
Principle
 - Email: jhird@moffattnichol.com



CITY OF NEW ORLEANS



moffatt & nichol