STORMWATER QUALITY

COMMON SOURCES OF URBAN POLLUTANTS

- Fertilizers
- Litter
- Pet-waste
- Dumpsters
- Vehicle exhaust, automotive fluids, etc.

COMMON POLLUTANTS FOUND IN URBAN STORMWATER

- NUTRIENTS
- TRASH
- OTHER
- METALS

IMPACTS OF POLLUTED STORMWATER

PUBLIC HEALTH: E.coli levels in Denver’s streams and river often exceed swimmable beach standards set by the EPA.

ENVIRONMENT: Water quality in most of the streams in Denver is not sufficient to support a healthy and diverse population of aquatic wildlife.

WHY ADDRESS WATER QUALITY WITH GREEN INFRASTRUCTURE?

ECONOMIC
- Cost effective approach to stormwater management that meets multiple goals
- Increased property values
- Increased building efficiency and reduced energy costs

ENVIRONMENT
- Healthier South Platte River, streams, gulches and lakes
- Improved aquatic and terrestrial habitat
- Better air quality
- Reduced urban heat island effect

QUALITY OF LIFE
- Increased resiliency Denver’s neighborhoods
- Enhanced recreational corridors
- Healthier, greener neighborhood connections
- Educational opportunities

MARION STREET GREEN INFRASTRUCTURE PROJECT

Whittier Neighborhood Community Meeting
April 18, 2018
GREEN INFRASTRUCTURE

Green infrastructure plays an important role in providing treatment to stormwater runoff before it is conveyed to our streams and rivers. By directing stormwater runoff through a vegetated green infrastructure facility, pollutants are removed as stormwater filters through plant material and soil. Without green infrastructure, most stormwater runoff is conveyed directly from the surface of our roads to the pipes in our storm drainage system which release directly into our streams and rivers, carrying with it pollutants and debris.

Green Infrastructure (GI) is currently included in planning efforts across the City. Benefits of GI include:

• improved water quality
• peak flow reduction
• place-making
• high-quality environments for pedestrian and cyclists
• additional green space
• lower local temperatures
• improved air quality

POTENTIAL GREEN INFRASTRUCTURE ALONG MARION STREET

EXAMPLE OF POTENTIAL FACILITIES ON MARION STREET

• Facilities located in spaces that minimize impact to existing mature trees and can add trees where trees do not currently exist
• Planters in tree lawn/existing right-of-way
• End-of-block curb extensions: • minimize impact to parking • create safer crossings for pedestrians

EXAMPLES FROM OTHER CITIES

...
33RD STREET OUTFALL

33RD STREET OUTFALL PROJECT
Three of the four segments have already been constructed. Construction for the fourth and final segment, which runs from Curtis Street to Marion Street just south of Martin Luther King Jr Boulevard, is anticipated to begin in the summer of 2018.

STORM DRAIN CAPACITY - EXISTING VS. PROPOSED
The new storm drain in 33rd Street is approximately 28 times larger than the existing 24"-diameter storm drain.

100-YEAR STORM DEPTH REDUCTIONS
The 33rd Street Outfall System will alleviate (relatively) frequent flooding problems in the Five Points/Whittier/Cole neighborhoods; however, benefits can also be expected for larger, less frequent storms, as well. Note the depth reductions, at left, for the 100-year storm (that is, on average, one would expect a storm of this intensity or greater to occur only once in 100 years).

33RD STREET OUTFALL STRUCTURE
The outfall was designed to connect to the river overbank rather than the river itself so stormwater discharge can be filtered through vegetation prior to entering the river.

WANT MORE INFO?

MARION STREET GREEN INFRASTRUCTURE PROJECT
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MARION STREET

MARION STREET SYSTEM
The Marion Street System is a key component for upgrading the level of drainage service within the Whittier neighborhood (projects “A” and “B” in the master plan map, right). The new pipe in Marion Street will intercept storm drain laterals to the east (21st through 31st Avenues), and will form a “dual system” with the existing storm drain in Downing Street that will continue to convey runoff from nearly all of the City Park West and Cheesman Park neighborhoods.

PHASES, SCHEDULE & IMPACTS
The project will be split in two phases - from Martin Luther King Jr Boulevard to 26th Avenue (Phase I) and from 26th Avenue to the 21st Avenue and Downing Street intersection (Phase II).

Phase I is anticipated to begin in the summer 2019; Phase II in the early part of 2020.

General neighborhood impacts include temporary street closures with loss of on-street parking, one block at a time.

SURFACE DRAINAGE IMPROVEMENTS
Drainage conditions at each intersection along the Marion Street corridor will be significantly improved. For instance, new drainage inlets will be placed upstream of pedestrian curb ramps, as shown in the excerpt at right from the City’s Storm Drainage Design & Technical Criteria Manual.

STORM DRAIN CAPACITY - EXISTING VS. PROPOSED
By retaining the existing storm drain in Downing Street and constructing a parallel storm drain in Marion Street, the capacity of the drainage system will increase fourfold, as illustrated above.

MARION STREET GREEN INFRASTRUCTURE PROJECT
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